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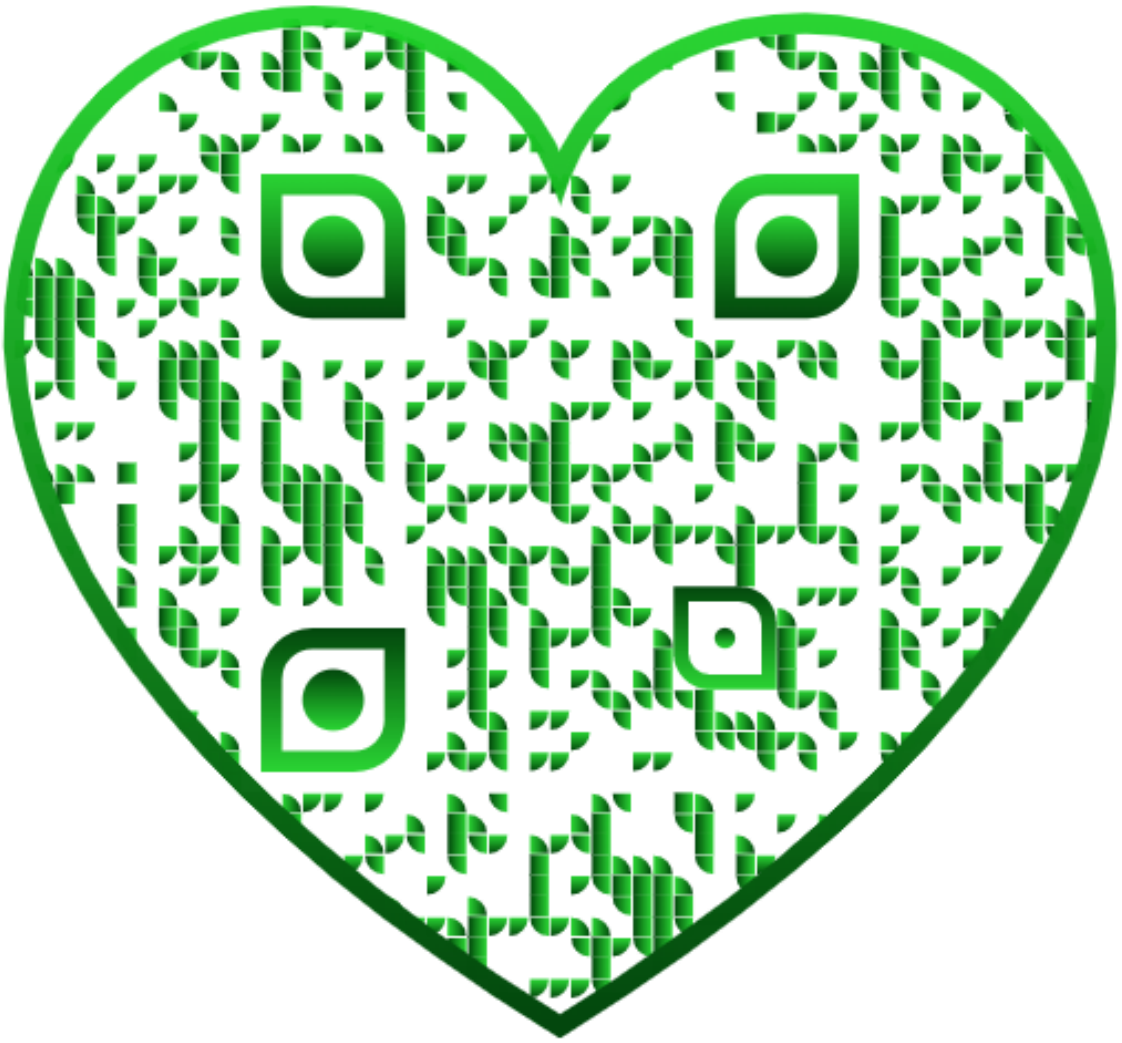

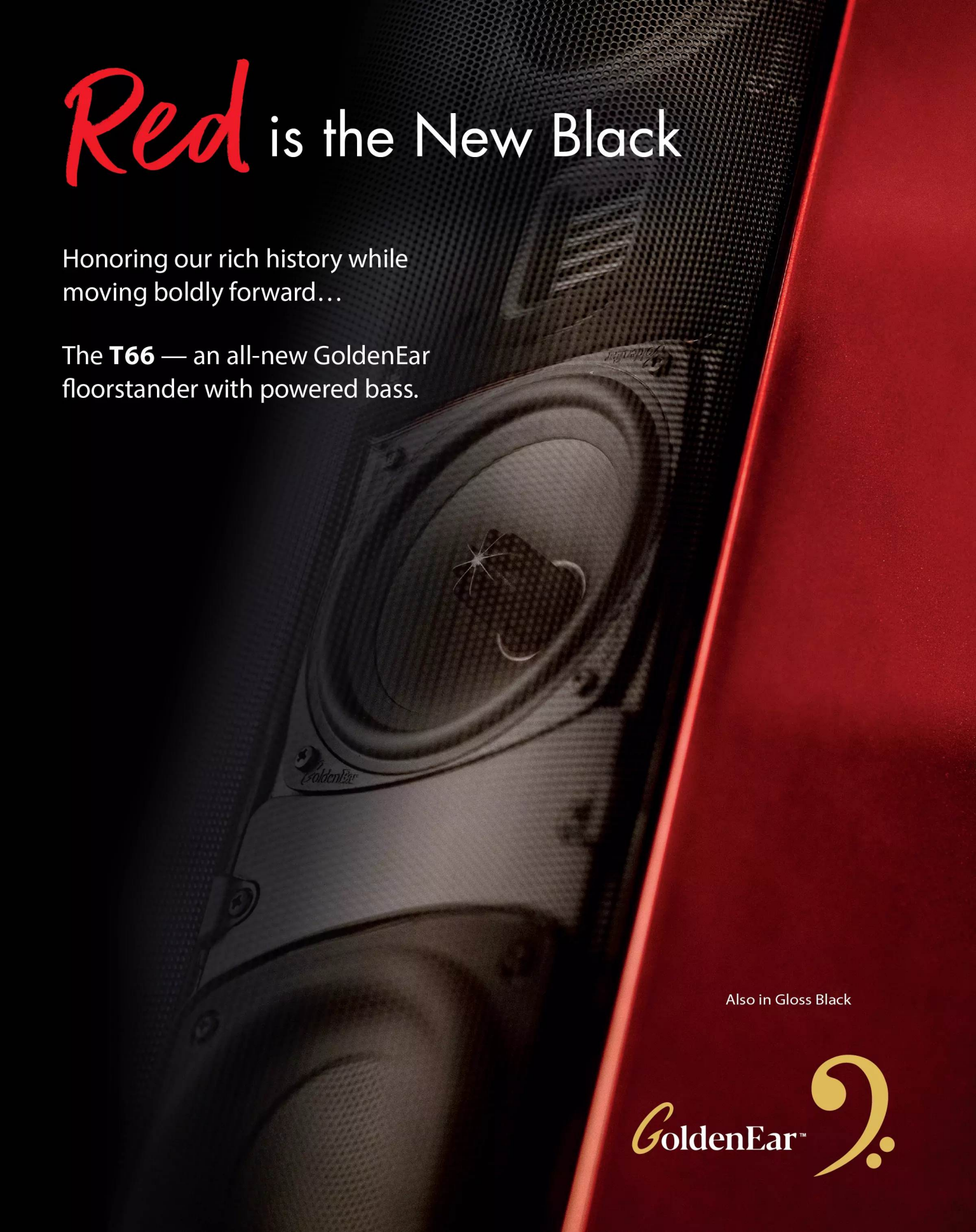
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T66 - A Look Inside

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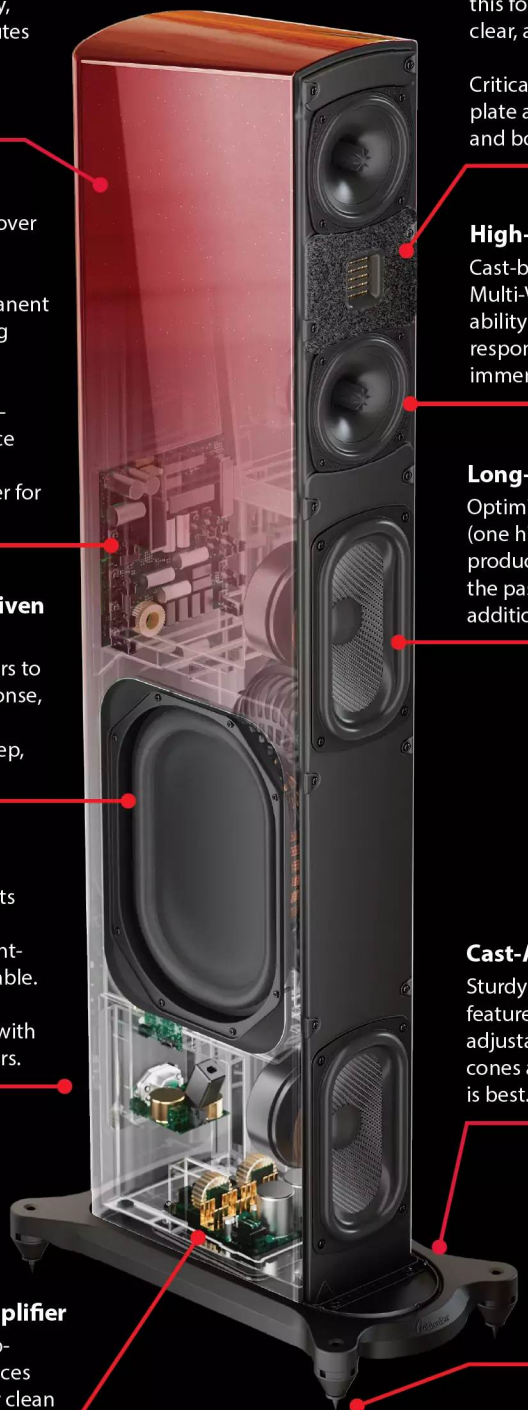

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Conical feet can be fitted with either steel spikes (best for carpets) or rubber tips (best for tile, wood, or other smooth surfaces that might be easily scratched).

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SOUND &VISION

22 EISA AWARDS

In the annual quest for audiovisual excellence, the Expert Imaging and Sound Association (EISA)—a coalition representing 58 esteemed publications and websites from 29 countries—unleashes its discerning eye on the world of Hi-Fi, Home Theater Video and Audio, Photography, Mobile Devices, and In-Car Electronics.

After months of meticulous testing and impassioned debate, EISA employs a democratic voting mechanism to reach a final consensus, awarding the pinnacle of innovation and quality in each category. Here, we highlight the AV-related winners.

On the Cover Clockwise from top: JVC HA-A25T earbuds, Sony XV800 wireless party speaker, TCL QM8 85" 4K TV, ELAC DS1200 12" dual-opposed subwoofer, Samsung QN95C Neo QLED 4K TV, RSL Speedwoofer 12S subwoofer, Onkyo TX-RZ70 AV receiver.

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WHAT HI-FI? ★★★★★
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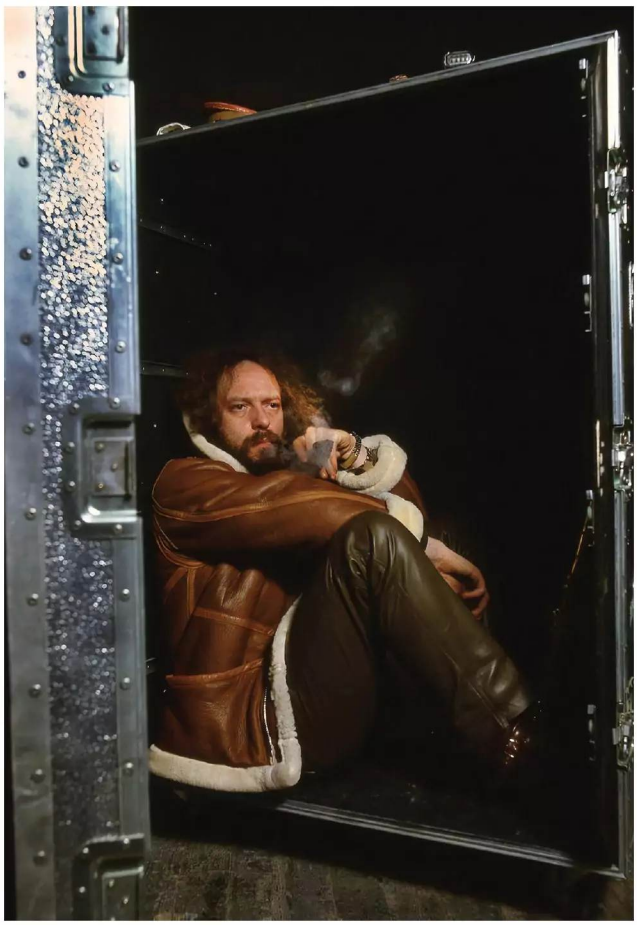

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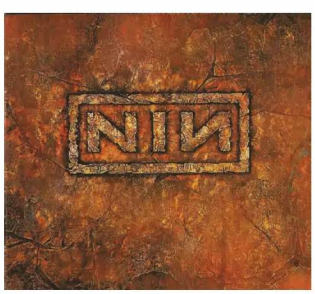

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The Evolution of Performance

LET'S DISCUSS the balance between performance, design and features in modern AV Gear.

Sometimes technology categories go through "wars." Recall the clock speed wars for CPUs, and now it's multicore. Remember the camera megapixel wars? That was followed closely by the optical zoom wars "look another picture of the moon!" How about the inkjet printer DPI wars? With TVs, people wonder if 4K and 8K will lead to 16K, 32K and beyond.

I've been both an observer and a participant in the evolution of audio and AV technology since the days of tube TVs and record players. One thing that strikes me is the highly competent design that has become more commonplace in recent years. Gone are the days when you needed to hire an acoustic engineer to ensure that your home speakers didn't sound like you were playing music in a tin can. Today's speakers are tuned to such a degree that "decent" sound feels like an understatement.

Similarly, modern TVs and projectors often come with "movie modes" that are impressively close to fully calibrated settings straight out of the box.

The Era of Competent Design

Competent design is not just a buzzword; it's the new reality. Companies have access to advanced technologies, measurement devices, and algorithms that allow them to fine tune audio and visual performance during the development phase. Sound profiles for active speakers are increasingly accurate.

Digital signal processing (DSP) algorithms have become so advanced that speakers can automatically adapt to room acoustics. Sound calibration, once the domain of sound studios and dedicated home theaters, has become accessible to the masses.

And picture quality among modern TVs and projectors is often well tuned right from the get-go, especially with Dolby Vision-equipped display devices and displays that offer a Filmmaker mode..

The Ascendance of Features and Functions

While purists will always champion the need for unparalleled performance metrics, and modern tech does allow for advances in raw performance, there's a simultaneous explosion in features and functions.

The Balancing Act: Performance vs. Features

So, this begs the question: At what point does performance become "good enough," allowing focus to shift towards features, functions, and even aesthetics? Answering this question is akin to balancing on a tightrope. On one side, you have die-hard enthusiasts for whom even a minor difference in audio quality is a deal-breaker. On the other side are users for whom the convenience of changing settings via a smartphone app or streaming directly from the device is a significant draw.

Ergonomics and Aesthetics: Unsung Heroes?

A device that offers tactile pleasure and visual allure has its own set of merits. A beautiful and ergonomically designed device can enhance the overall experience in a way that pure performance metrics may not capture.

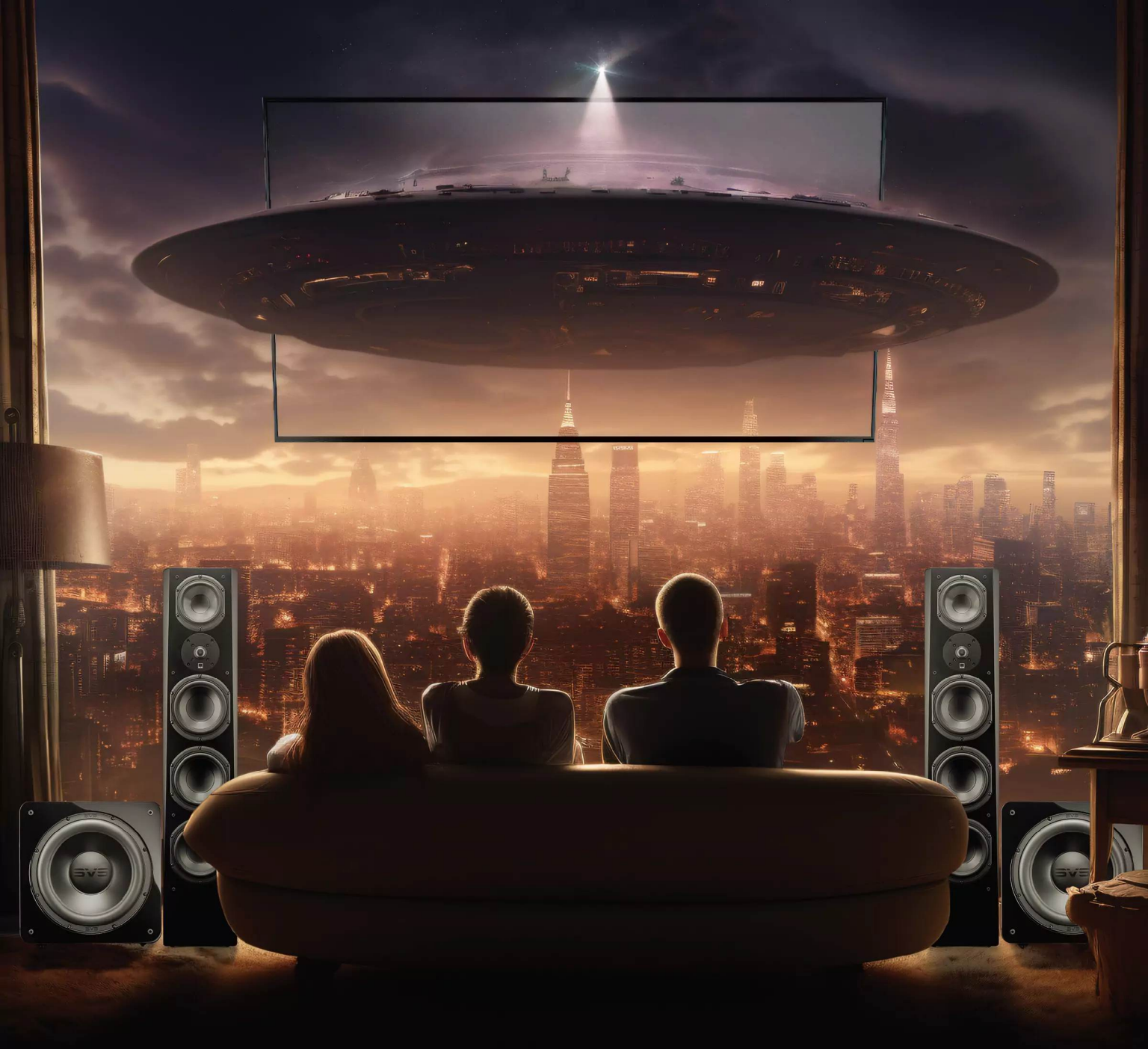
The Era of Functionality

It's clear that competent design is becoming a baseline rather than a premium feature. While the importance of performance will never fade, the value proposition is increasingly influenced by a device's other attributes. Just consider the success of Sonos, it's not leaning on historical name recognition the same way legacy brands like Bose, Sony or JBL do. You know the company because it succeeds by finding the right balance of looks, price, features and performance for each of its releases and focuses heavily on features and usability.

When shopping for new audio or AV gear, users are justified in considering the complete package — features, functions, ergonomics, and aesthetics — when making their purchasing decisions.

Long Live Measurements

I often read online discussions about the qualities that constitute a good review. Many argue that measurements are indispensable, and they indeed serve an important purpose. But, with specialized testing sites like rtings.com, does it not become redundant to measure the same characteristics? Aside from identifying potential defects, why duplicate the effort? If raw specifications were key selling points for audio gear today, companies like Apple, Bose, and Sonos would publish them. But I won't hold my breath.



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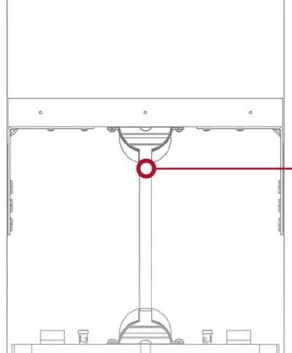

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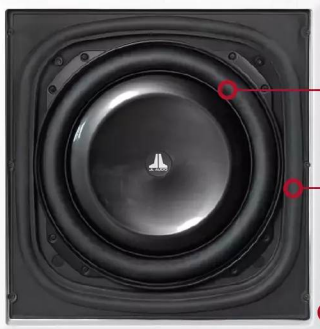

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Why Local Stations Cut Access to National TV Channels

"In West Texas, our local Fox station is in a dispute with DirecTV, AT&T TV, and U-verse. Because of this, those of us with these carriers have been unable to access the national Fox station since October 2022. Complicating matters further, the owners of our local Fox station also own the local ABC station. As a result, we can't receive national broadcasts on ABC either.

"I don't understand the problem. Why is DirecTV compelled to rely on our local stations, especially when these stations deny them access? Seems to me, if the local station won't give DirecTV access, DirecTV could send us Fox and ABC from some other location. Additionally, it's surprising that the national Fox and ABC networks allow this to happen. No one in our city with any of these services can access national Fox or ABC broadcasts, or even view their commercials. Seems like the national broadcasting companies should be unhappy about this. Why won't they step in to resolve the situation? Can you explain it?"

Bruce Moore

The situation you're describing is unfortunately quite common in the media landscape and a source of frustration for consumers. There are several factors at play, each contributing to why you can't simply get Fox and ABC feeds from other locations. Here's a comprehensive rundown:

Local vs National Broadcast Rights

TV networks like ABC and Fox don't directly broadcast their programming to individual consumers. Instead, they distribute it through local affiliate stations, which are either owned and operated by the network or are owned by separate companies that have an agreement with the network to broadcast their programming. This local/national structure exists for historical, legal, and financial reasons.

Must-Carry and Retransmission Consent

In the U.S., laws such as the Cable Television Consumer Protection and Competition Act of 1992 give local broadcast stations the option to demand that their signals be carried on cable and satellite platforms via "must-carry" laws, or they can negotiate a fee from the cable or satellite provider through what is called "retransmission consent." Disputes often arise during negotiations for retransmission fees, and sometimes that results in a blackout — what you're experiencing now.

Must-Carry Rules give local broadcasters a lot of power in their negotiations with cable and satellite providers. Local broadcasters can demand high carriage fees to carry their channels. If a cable or satellite provider refuses to pay, the local broadcaster can black out its signal. Viewers who subscribe to that provider will not be able to watch the channel.

Exclusivity and Significantly Viewed Rules

FCC regulations prevent cable and satellite companies from importing signals from distant stations for network programming if the same programming is available through a local affiliate, regardless of whether the affiliate is part of the service. This is known as the "network nonduplication" rule and "syndicated exclusivity" rule, commonly referred to as "Syndex" rules.

National Networks' Limited Power

You may think that national networks like Fox and ABC should be able to intervene, but they're often limited by their contracts with local affiliates. These contracts usually grant exclusivity rights within a certain geographical area to the local stations. Violating these could result in significant legal and financial consequences.

Commercial Considerations

The national networks and local affiliates share advertising slots during programming. By losing a local station, both the network and the affiliate miss out on viewers and advertising revenue. Though this is a short-term loss, both parties have an interest in maintaining their long-term contractual relationships, which can sometimes make the resolution process painstakingly slow.

Consumer Options

Consumers have some options, such as switching to a different TV service that has an agreement with the local stations, using an over-the-air antenna to receive local channels for free, or turning to streaming services that offer live TV channels (though these are also subject to similar blackout rules). Another strategy is to use on-demand services to catch up on shows, though this may not be feasible for events that you'd prefer to watch live, like sports.

I understand how incredibly frustrating and bewildering this blackout situation can be for you as a viewer. It's a complex web of federal regulations, contractual obligations, and commercial interests that leaves consumers like you caught in the middle. We share your hope for a swift resolution that restores your access to the programming you enjoy.

The Stress of a New TV

BY MICHAEL ANTONOFF

In switching from a 7-year-old 55-inch LCD to a new 65-inch OLED TV, I've been awestruck by the transformation in picture quality. Yet, the upgrade has not been pain free.

This is partly due to the manufacturer's abandonment of legacy ports. The stereo output that connected to my reliable analog headphone transmitter is gone. Didn't Sony, the manufacturer of my new TV, realize that when two people share an apartment, private listening keeps them from driving each other crazy? This is stated in the maxim: the basis of a good marriage is a set of wireless headphones.

Since the new TV does have a digital optical audio output, my workaround was to buy an inexpensive digital-to-analog converter and connect it to the transmitter. No dice! A Sony tech rep I phoned to find out why the headphones weren't getting a signal confirmed that the digital audio-out setting is disabled when using audio signals that are passed through the HDMI's Enhanced Audio Return Channel.

I wasn't about to stop using the TV's eARC port, which accommodated my Roku-embedded soundbar, four satellite speakers and subwoofer. I also wanted to be able to call upon the Roku visual interface and stream channels not available on the Sony TV—impossible using the digital optical connection.

So, I next bought a pair of Bluetooth headphones since both Bluetooth and a USB charging port are built into the TV. That worked, though locating the Bluetooth menu on the screen and running the pairing routine means additional steps that were unnecessary with my old analog headphones.

Also missing on the TV is a set of conventional composite video and stereo inputs. It's not that I often use my VCR, but I want the assurance that I can still play tapes. The TV does contain a single input for VHS hoarders like me, but using it required yet another purchase—a special cable with yellow, red and white inputs on one end and a one-pin output on the other.

Then, there is the matter of being able to toggle my sound system between movie and music modes. With movies, listeners typically rely on the front speakers while the rears are deployed for effects like an approaching thunderstorm or bouncing hubcaps dislodged during a collision. With music, though, I prefer firing up all the speakers. With my old TCL Roku TV, I merely had to press the asterisk button on the remote to access the sound system menu. Roku confirmed that its soundbar was compatible with the Sony TV. But using the TV remote would no longer be possible. If I didn't want to switch to the Roku interface in the soundbar, my best bet was keeping a screen phone in reach and using the Roku app to toggle between TV/movies and music. (Luckily, I didn't have to buy a phone, too.)

By now, you're probably thinking that I carry too much baggage to appreciate my new TV. Not so! I just love the deep blacks, the high dynamic range, the enhanced smartness of the interface and the TV remote control of my DVR that I didn't have before. These are obvious pleasures that negate the pain. Truthfully, my biggest hurdle was getting over my buyer's remorse of not having gone bigger. Sure, the diagonal is 10-inches larger than before, but why didn't I ascend the scales even further for a TV I'd likely own for the rest of the decade? It didn't help when just after I ordered my 65-inch TV the gym in my co-op installed a whopping 77-incher. Sweating, I stared at it from the treadmill, thinking, "What have I done?!"

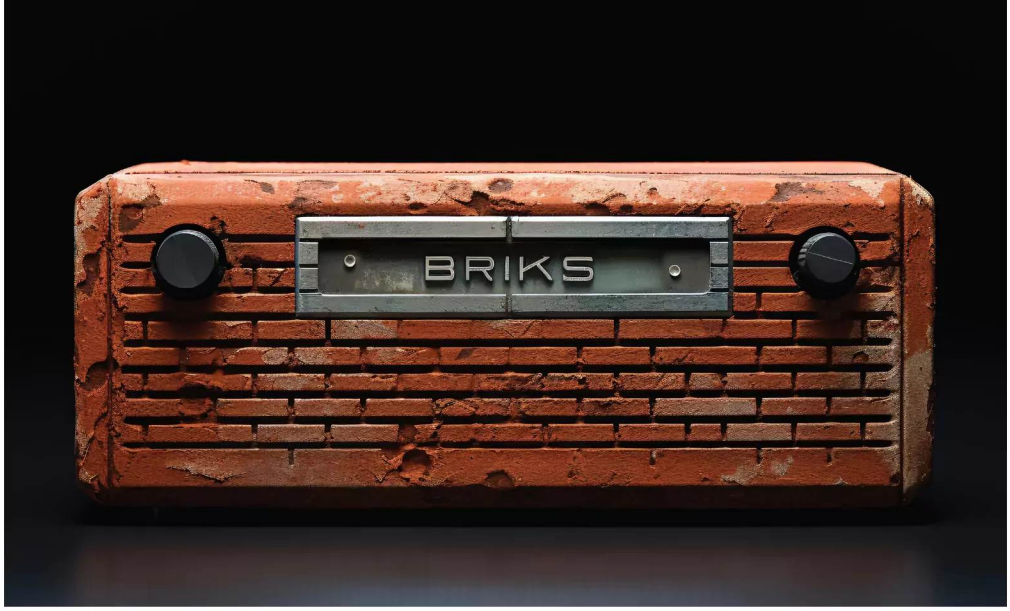
I was haunted by what the white-haired guy who sold me my TV had quipped: "Seventy-seven is the new 65."

In response, I tried moving the sofa and coffee table closer to the TV. If I could pare my peripheral vision, the TV would loom larger. But whenever I sat down, the sofa skidded back to the wall. I thought of placing abandoned components—a 63-watt Technics receiver, a CableCARD-defrocked TiVo—behind the couch to keep it from slipping backwards. My wife peered at me with disdain. "What a waste of room space," she remarked.

It has been three months since the TV arrived. I've now acclimated to its size, giving up the idea of trying to shorten the viewing distance. The sofa is back against the wall, and I've decided that exuding regret is no way for a home theater enthusiast to behave. Sixty-five inches is plenty, and I'm finally at peace with my stunning new set.

The Author

Michael Antonoff was executive editor of *Video*, a founding editor of *S&V* and a tech columnist for *USA Today*. He's covered Netflix since its inception and been a continuous user of its disc-by-mail and streaming services.



wide angle signals

The Time When That Radio Station Bricked Your Car's Radio

BY KEN C. POHLMANN

Has this ever happened to you? You're cruising down the boulevard, listening to your favorite music on your favorite radio station, then suddenly your infotainment system goes dead. WTH? If you were driving a Mazda, this might sound all too familiar.

Car radios still contain the traditional bits and pieces of analog radio circuitry, but they also contain IBOC (in-band on-channel) digital radio hardware and software. In particular, newer radios receive AM and FM analog radio transmissions and they also receive HD radio data streams in the same bands. That data provides higher audio fidelity and the ability to add auxiliary data such as images. But as with all things digital, if there's a 0 or 1 in the wrong place, bad things can happen.

And last year, bad things did indeed happen. Drivers in the wrong place (Seattle) at the wrong time (January 30, 2022), driving the wrong kind of car (Mazda), with the wrong radio (manufactured sometime between 2014 and 2017), listening to the wrong radio station (KUOW 94.9), receiving the wrong signal (IBOC), were doubtlessly surprised when suddenly their radios went haywire. The good news: the radio would receive 94.9. The bad news: it was stuck there and the rest of the infotainment system – clock, Bluetooth, navigation, back-up camera, etc – gone.

If you guessed that something in the broadcast data stream wasn't kosher, you are correct. Subsequent analysis showed that the station had transmitted an image file with a name that lacked an extension (like .jpg, .png, etc). Mazda radios tuned to that station at that time obediently received the file but, crucially and inexplicably, the radio's firmware was unable to recognize file names lacking an extension. When it received the whiffed file name, the radio was thoroughly confused; it crashed and rebooted – a "boot loop" that would last for all eternity or until the car was crushed, whichever came first. Even worse, there was no way to restore the radio's functionality. Apparently there wasn't even a CTRL+ALT+DEL break-glass-in-case-of-fire remedy. Oh – maybe disconnecting the battery for a few minutes? Nope.

You could blame the radio station for broadcasting disallowed files. But the real fault lies with the manufacturer of the encoding equipment the station was using. In particular, the equipment was from Xperi, a well-regarded corporation in the HD Radio sandbox. Some software (like Windows) forces you to add a file extension but other software (like GNU/Linux) does not. In this case, apparently the whole file extension thing slipped through the cracks.

Or, you could blame Mazda (or whichever vendor wrote the infotainment code for them) for not checking the input data for validity, or at least providing a recovery method. Frankly, any device that is essentially destroyed because of an unexpected data input shows a serious lack of competency. Data streams arriving from Lord knows where absolutely must be checked and double-checked for validity, not to mention malware. The bad news: the only remedy was a new 'Connectivity Master Unit' that cost $1,500. The good news: Mazda agreed to cover the cost, subject to supply-chain availability.

For the rest of us, this is a cautionary tale. The problem is that such events occur far too often. Consider these additional anecdotes of radio broadcasts messing with radios from various car makers: In one case, car batteries kept going dead; the problem was traced to the radios; even when the radios were apparently turned off, a mischievous broadcast signal had caused the radios to continue to draw power, thus killing the batteries. The remedy? New radios. In another case, some radios were temporarily corrupted by an errant signal from an encoder that had been updated. The remedy? Patiently wait for another update to fix the previous update. In still another case, the radios in some vehicles crashed when tuned to a podcast called "99% Invisible;" the operating system was unable to correctly read the "%" in the title. The remedy? The podcast authors created a special feed for those car owners in which the "%" was spelled as "percent." I kid you not.

Of course, this kind of unruly behavior is not limited to car radios. It can happen to any kind of software-driven device. The simple fact is that we have no way of vetting the code inside the software devices we rely on every day. We are at the mercy of caffeine-junkie (no offense intended, just stating the facts) programmers who write those hundreds of millions of lines of code. When the stars align (or crash into each other) we get one of those "Wow! That's weird!" software events – sometimes followed by a hardware brick event.

A final note: Soon self-driving cars will be everywhere. And I'm sure AI will control all the traffic lights. Good luck to us all. We'll need it.

The Author

Ken C. Pohlmann is an electrical engineer specializing in audio topics as a consultant and writer. He is Professor Emeritus at the University of Miami.

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The Lexicon of Atmos

Martin Fry on the deep affection he has for the 40th anniversary Dolby Atmos mix of ABC's classic 1982 synth-pop debut, *The Lexicon of Love*.

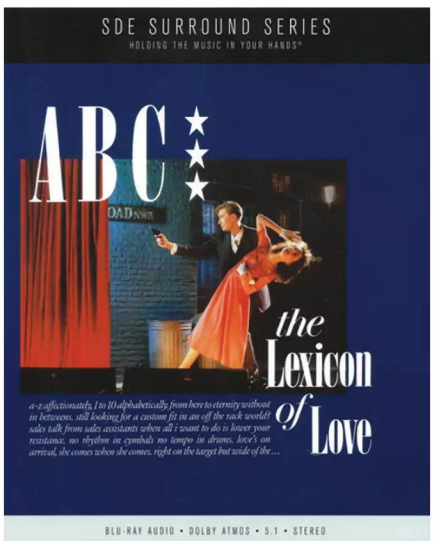
BY MIKE METTLER

ABC didn't exactly fit into the expected early-1980s new-wave mold—and that was just fine with the band's co-founding lead vocalist and chief songwriter, Martin Fry. To that end, ABC's debut album, June 1982's synth-pop classic *The Lexicon of Love*, cut a wide compositional swath that deployed a mixture of broadstroke keyboard flourishes, grand orchestral swells, and call-and-response vocal passages. And now, the album sounds even *fuller* in its recently released Dolby Atmos mix, one that can be found on *The Lexicon of Love*'s stand-alone 40th anniversary High Fidelity Pure Audio Blu-ray and as part of its concurrent 4LP/1BD box set (both Neutron/UMC). In a recent Zoom interview, Fry and I discuss why he feels listening to *The Lexicon of Love* in Atmos is akin to "climbing inside a crystal kingdom," and what he likes best about how the ever-ubiquitous surround maestro Steven Wilson mixed it for Atmos playback. (A longer version of this interview appears in my monthly Spatial Audio File column on the *S&V* site.)

Mike Mettler: Tell me how the Atmos mix of *The Lexicon of Love* came to be.
Martin Fry: I went over to see Steven Wilson at his studio in North London—and he's just brilliant. I love his work, especially the surround mixes he's done for bands like Roxy Music. He lives three or four miles from where I am now, and he let me sit in the studio while he did the mix. It was incredible to have three speakers there [indicates the front soundstage], with the vocals in the center and four speakers above, and three behind.

To climb inside the record like that—it's obviously a piece of music I'm familiar with, and the songs on it that I continue to play onstage—it was like climbing inside a crystal kingdom. I was listening to it in his studio where he had the full setup, and it was incredible! There were some guitar parts I just couldn't remember ever hearing before until he played that mix for me.

I heard a lot more of what we had done on



The Lexicon of Love in the Atmos mix, and it's kind of charming how it all comes together. I'm amazed how well it worked. We weren't perfect in how we made it at the time, but it sounded believable and authentic.

Mettler: I have to imagine the most dramatic moment in "Poison Arrow"—when you say, "I thought you loved me / But it seems you don't care," followed by that somewhat buried female response, "I care enough to know / I can never love you," and then we get that *big* drum attack—I mean, that's gotta sound *incredible* to you in Atmos, just like it did to me.
Fry: Yeah! I mean, all you listeners be the judge when you hear it, but we were chasing those kind of—well, how would you put it? Like those really *sensory* moments. We always had this theory back then. It was the early '80s, so you've got to imagine there were people out there who were listening to music on headphones, and on Walkmans. I remember seeing this girl on a pair of roller skates, and we used to say to Trevor [Horn, the original album's producer], "Can we mix this record so that if the girl on the roller skates plays it, she's just going to fall over and lose her balance?" It wasn't intended to hurt anyone—we just had this idea of having something *disorientating* in a mix. It's not a new idea—but, yeah, we've always toyed with that notion of, "How do you make a piece of music really *slam* it?"

Mettler: When you were sitting there with Steven Wilson and listening back to the *Lexicon* Atmos mix, did you have any notes or comments to share with him about hearing things you hadn't heard before like the guitar parts you mentioned? Did you bring up anything else you wanted to hear?
Fry: No, I really liked everything he'd done because he didn't mess with the engineering of the record, the structure of it, or the architecture of it. You don't want somebody to suddenly turn all the vocals down, or cut something out. I don't know exactly *how* he did it, but it was really respectful—and it *enhanced* it.

For me, it was like I was immediately transported back to when we made it. I'm sitting there, and there's Trevor Horn, and there's [engineer] Gary Langan. We're in Sarm East, the tiny studios on Brick Lane [in London], in 1981, finishing off the record—and hearing it in Atmos is like being in the studio.

Whenever you come to make a record, there's always something you *aspire* to, you know? With *The Lexicon of Love*, we wanted to make a very *luxuriant* sound—something that was kind of funky and with a rhythmic pulse, but also a little bit awkward. That just comes from being English, I guess.

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Summer Entertaining - Video

BY JOHN SCIACCA

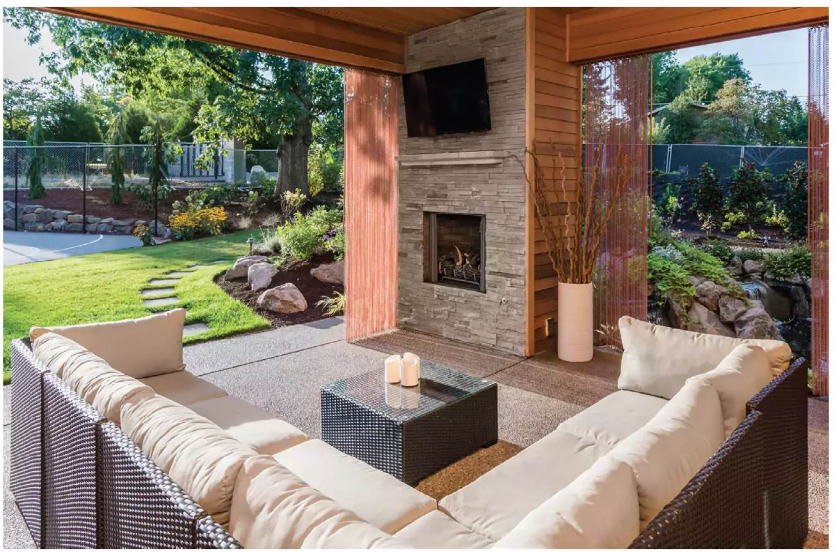
As I write this, we are in the height of summer! Where I live in South Carolina, the beaches are packed, families are enjoying the last days of summer vacation by the pool, and outdoor entertaining is on my customers' minds.

In my previous column, I discussed outdoor audio solutions, ranging from good (portable/Bluetooth speakers), to better (multiple surface mount/rock speakers), to best (full-blown landscape audio solutions). With these you can ensure your outdoor oasis is filled with enough tunes to make sure the party lasts well past sundown.

But what if you want a little V to go with your A? I've got you covered!

OUTDOOR VIDEO CONSIDERATIONS

Just like choosing a display for inside your home, you'll need to decide whether you are going with a direct-view display or a projector. You'll also need to decide if this is permanent installation that will live outside year-round, or a temporary solution you'll bring in-and-out as needed. And it will be a permanent install, you'll want to take into account where the screen will be positioned relative to the sun's path in the sky.



GOING DIRECT

Direct view LED displays have a lot of advantages over projectors for outdoor installs. First, they are *way* brighter, meaning they are visible during daylight hours. Also, almost all TVs are "smart" now, meaning that they have all of the streaming capabilities built-in. And like an indoor install, all you need is access to power and a suitable wall or ceiling to mount it to and you're done.

There are two schools of thought on going with an outdoor TV. 1) Buy a cheap "regular" TV with the knowledge that it *will* die and you'll have to replace it. (Technically, once you put an indoor TV outside, it's warranty is void.) 2) Buy an *actual* outdoor TV, paying a higher upfront cost, but hoping it will give years of performance. (#ProTip – Regardless of brand, outdoor TVs are one of the few items we really encourage buying an extended warranty for.)

"But, John. My TV is going under a covered porch/patio and won't really out in the elements. Won't it be fine?"

Maybe, but probably not. And it really depends where you live. In Myrtle Beach, the air is wet year-round; cold and wet in the winter, hot and wet in the summer. And all that moisture in the air can wreak havoc on the sensitive electronics inside a TV. I had one customer that purchased three 90-inch Sharp LEDs installed under a large covered patio. All died within the first year.

While outdoor speakers are available from nearly every manufacturer, the pickings are slimmer when it comes to displays, and your options include SunBrite, The Terrace from Samsung, Neptune from Peerless, SkyVue, and Seúra, with sizes now ranging up to 85-inches.

Beyond just being in a housing designed to withstand the elements, an outdoor display is built to function in more extreme temperatures, is often brighter than its indoor counterpart, and has its inputs/connections behind a sealed compartment.

GET SHADY

Even with a true outdoor display, you'll want to keep the sun's position in mind, and when shopping you'll probably see terms like "full shade," "partial sun," and "full sun." These ratings don't refer to the weather-resistance of the display, but rather how much sun/heat the panel can handle – not only ambient temps, but also how hot the screen can get and still function properly. (You ever gotten the temperature warning on your phone when using it for too long out in the sun? Same.)

Even with a full sun model, it's best to position the display where the screen will never be head-on to the sun, which is one of the reasons why using a full-motion articulating arm mount is usually a great idea with an outdoor display. This will also help to insure you can always move the screen to face the viewers.

SOUND MATTERS

Even though outdoor displays have built-in speakers, these are generally pretty lackluster, especially when you consider how much ambient noise they'll be competing with. This means some form or additional audio is preferred. Of course, if you have an outdoor audio system – and you can get a cable back to your electronics – you could tie the TV into that. But a simpler solution would be to use a soundbar which just connects to the TV's digital audio or HDMI ARC output, and both SunBrite and Samsung offer weatherproof soundbars.

Another option we've employed is to install something like a Sonos Amp in a recessed in-wall enclosure like Strong Mounts' VersaBox behind the TV, then wiring to a pair or two of traditional surface mount, outdoor speakers. With this, you get greatly improved TV audio via the ARC connection, with the ability to enjoy streaming music as well.

But let's say you want something bigger than an 85-inch or are looking for a true outdoor theater experience? That takes a bit more doing, and is something I'll cover in my next column!

The Author

For the past 20 years, John Sciacca has worked as a custom installer in South Carolina. In his free time, he enjoys playing pickleball and watching movies on his 7.2.6 surround system.

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wide angle Q&A

iMac Analog Connection, Improving Atmos

BY MARK HENNINGER

Q Is there a way I can play music from my iMac's Music app through my Pioneer SX-1250 Receiver?

PAUL

A Certainly, connecting your iMac to a vintage Pioneer SX-1250 Receiver offers a unique blend of the digital and analog worlds. The most straightforward method to achieve this connection is using a 3.5mm to dual RCA cable. Simply plug the 3.5mm end into your iMac's headphone jack and the RCA ends into an available 'Line In' port on your Pioneer receiver. This analog connection is easy and convenient, but it might not offer the highest sound quality possible.

For audiophiles who seek improved audio fidelity, employing a Digital to Analog Converter (DAC) could be the right choice. In this setup, you'd connect the USB output from your iMac to the USB input on the DAC. Then, use RCA cables to connect the DAC to an available input on your Pioneer receiver. The DAC can significantly improve the audio quality by handling the digital-to-analog conversion itself, rather than relying on your iMac's built-in capabilities.

Wireless options provide the added benefit of removing the tether between your iMac and receiver. A Bluetooth audio adapter can be plugged into an RCA input on your receiver, which can then be paired with your iMac for wireless streaming. If you're within the Apple ecosystem, an Apple AirPort Express can facilitate AirPlay streaming. Connect it to your receiver using a 3.5mm to RCA cable, and you'll be able to wirelessly stream music from your iMac.

For a high-end, networked solution, you might consider network streamers like the Sonos Port or Bluesound Node. These devices integrate with your home network and connect directly to your Pioneer receiver. Using specialized software that supports a variety of services, you can stream high-quality audio directly from your iMac to the network streamer. This setup allows for the use of high-definition audio files and offers an array of streaming options. Another possibility to look into is the WiiM player.

Regardless of the method you choose, it's crucial to remember not to use the 'phono' input on your Pioneer receiver. This input is specifically calibrated for turntables and will not provide the correct equalization for other audio sources.

Given your background and interest in audio technology, you might find the DAC or network streamer options particularly appealing for their capability to deliver superior audio fidelity.

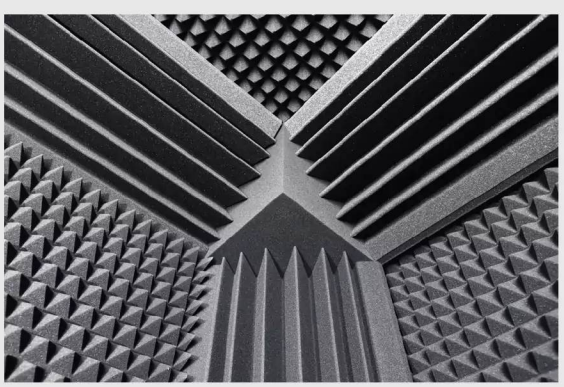
Q I'm wondering which upgrade will make a more significant audible difference in my home theater: a power amplifier or room treatment?

I have a moderately-sized room that measures 17 x 16 x 8.5 feet, featuring tile floors that are covered by a large rug. My current 7.2.4 setup is powered by an Anthem MRX 1140. For speakers, I use Paradigm 80F and 70LCR for the front channels, Monitor Audio Bronze 2 bookshelves, FX for surround and Atmos speakers, and as well as a pair of Paradigm X series subs.

Would adding an Anthem Power Amp 525 Gen 2 or investing in room treatments, like corner bass traps and back wall acoustic panels, offer a more audibly noticeable upgrade? I find that audio mixes with 5-channel recordings sound immersive and even, but many Atmos-mixed tracks don't feel as balanced. I'm unsure if this is due to the quality of the recordings or if I need greater amplification when more channels are engaged."

MICHAEL

A Ah, the age-old debate in the audio world: hardware versus environment. Both are critical factors in sound quality, but they have different roles to play. If you find 5-channel recordings to be immersive but Atmos tracks to be less even, it's a good hint that room acoustics might be at play, related to how sound is reflecting and being absorbed in your room.



Unless you are clipping your amps, there's no benefit to adding even more power. You will only experience marginal improvements since your current receiver already offers high fidelity so long as it is adequately powering your speakers. You are already running what sounds like a pretty high-quality setup, you will likely get a more audible difference from treating the room—which often solves problems that no amount of equipment upgrading can fix.

Room acoustics can be tricky and treating them can get complicated. But as first steps, perhaps reconsider the locations of your Atmos speakers, or fiddle with the system calibration to get a more natural sense of envelopment.

Your 17 x 16 x 8.5-foot room with tile floors, even if partially covered by an area rug, is still likely to have acoustic challenges such as bass build-up in corners and reflections off the walls and floor. Room treatment like corner bass traps and back-wall treatment could significantly improve sound imaging, reduce sound coloration, and make the audio more 'natural' sounding.

Therefore, you'll probably get a more significant and audible upgrade by investing in room treatment.

But having said all that, there are potential benefits to an amp upgrade. The benefit of adding an amp to an AVR is the all channels driven spec is invariably lower than the two channels driven spec, due to power supply limitations. But with an external amp in the mix, the AV gets to tap its power supply to feed more power to the channels it does drive. So when you add the amp, the AVR effectively becomes more powerful, too.

And hey, if the budget allows, doing both wouldn't hurt!

wide angle

smartstream

The Hidden Cost of Cutting the Cord

BY BARB GONZALEZ

As streaming media has grown over the past decade, many of us have migrated, cutting the cord from cable/satellite providers to getting all our entertainment through streaming services. At first, it was a bargain, a relief from spending over $100 per month for cable. We could watch what we wanted when we wanted without commercials. Now that more than half the cable TV households have switched to streaming only, most of the benefits of cutting the cord are disappearing or becoming more expensive.

This fall, many services are raising their rates for ad-free plans, and media analysts say it's not over. Business Insider reported that subscription prices have surged almost 25% over the past year. According to Wall Street media research firm Bernstein Research, the combined subscription price to Disney+, Hulu, Netflix, Max, Peacock, Paramount+, and Apple TV+ subscriptions went from $76.43 per month last year to $94.43. This included both ad-free and ad-supported plans, plus an antenna.

The price soars if you add live TV services instead of an antenna. YouTube TV adds a minimum of $73 per month, and Hulu+ Live TV starts at $69. That brings the online entertainment total to over $140 per month, which can be more than the cost of cable or satellite.

Subscription prices continue to rise. In August, Disney CEO Bob Iger announced a $3 increase to ad-free subscriptions of Disney+. That's a 30% jump. The monthly cost for Peacock increased by $1 for its ad-supported tier and $2 for ad-free. Paramount+ dropped its $10 ad-free plan but now includes Showtime streaming at $2 more per month, making it $12 to skip the ads.

Enjoying TV shows and movies without interruption can run almost double the monthly fee. Netflix launched an ad-supported tier at $7 per month and ended its $10 Basic plan. It now costs $15.49 each month for the benefit of not watching ads.

While some viewers boast that they haven't seen a commercial in years, more people are willing to put up with ads in exchange for substantially lower subscription rates.

Iger said that 40 percent of new Disney+ subscriptions were ad tier. A Netflix source told the Hollywood Reporter that Netflix's ad-supported plan doubled subscriptions to more than 10 million active users from 5 million in the first quarter.

The article also states that an August 1 Hub Research survey showed 60 percent of respondents would watch content on an ad-supported platform rather than ad-free.

Hub senior consultant Mark Loughney told the Hollywood Reporter that consumers see the benefit of ad-supported content. "It allows them to choose their preferred video tiers at lower cost, and when presented right, advertising results in a more engaging viewing experience."

Streaming companies are steering customers to ad-supported subscriptions by raising the prices of ad-free tiers because the ad plans are more profitable. Not only does the company make money from the advertisers, but the customer pays a monthly fee, too. The total revenue per subscriber is more than the ad-free plans. Customers are rewarded for giving up the commercial-free benefit.

FAST (free ad-supported TV) channels take it even further by offering free content on linear channels. Not only are there more commercials than other streaming services, the content is streamed on a schedule. If a customer is willing to give up the benefit of VOD-watching a video when they want—they can watch for free.

The number of FAST streaming services continues to grow as FireTV channels just launched, and TCL+ will be available by the end of September. Samsung, Roku, and Sling TV offer FAST channels streaming hundreds of niche channels from reruns of game shows to *The Joy of Painting with Bob Ross*, classic films, and some live TV too.

The one benefit that has yet to be removed is that streaming services continually emphasize that they offer no contracts to lock customers into year-long subscriptions. The flexibility to cancel and renew subscriptions from month to month can potentially help budget-conscious consumers save even more money as they hop from one service to another, following the ever-changing content they desire. While the benefits of streaming over traditional TV subscriptions still stand, achieving savings now requires a more proactive, strategic effort.

The Author

Barb Gonzalez is a multi-talented individual who has been a celebrated travel photographer for over a decade. She is also a pioneering tech writer and was dubbed the "Simple Tech Guru," authoring "The Home Electronics Survival Guide" and contributing to major tech publications with tech reviews, advice, how-tos, and news.

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2023-2024 HOME THEATER VIDEO+AUDIO

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To win an EISA award all products undergo a comprehensive multi-step judging process, and many still fall by the wayside. EISA's product evaluation begins in the first few months of the year and runs right through to early July with EISA's webinar program putting brands and their latest technologies in front of the Association's expert editorial audience. Over 50 brand webinars were hosted by EISA this year and over 100 new – often very new – products were shipped between member countries. In-depth testing and judging extended over many months, fueling lengthy and highly informed discussions. Finally, after all the testing, EISA's democratic voting process establishes a consensus of excellence that ultimately determines the winning products.

EISA
BEST BUY
AV RECEIVER
2023-2024

Onkyo TX-RZ50

Thanks to an extensive feature set, including full-bandwidth Dirac Live for in-depth calibration, Onkyo's TX-RZ50 receiver offers impressive value for money. Even better, it backs this up with a gutsy, immersive performance that wrings every last detail from Dolby Atmos and DTS:X movie soundtracks. Ample power from its nine-channel Dynamic Audio Amplification output stage ensures a dynamic, bass-rich presentation, while 11-channel processing allows for system expansion. Music playback isn't ignored either: two-way Bluetooth and a DAB+ tuner join forces with Apple AirPlay 2, Chromecast and DTS Play-Fi multiroom to cover all bases. Rounding out a complete package is Onkyo's slick Controller app, plus an app option for Dirac, which makes operation a breeze.

EISA
AV RECEIVER
2023-2024

Primare SPA25

Marking a welcome return to the AV receiver arena, Primare has created a multichannel, immersive audio powerhouse that captivates with both movie and music playback. A nine-channel design based around energy-efficient Hypex Class D amplification, and supporting front speaker bi-amping, the SPA25's sound mixes delicate smoothness with transient attack, bass weight and seamless soundstaging – all ready to be fine-tuned by Dirac Live software. Other features, including the company's well-regarded, hi-res Prisma streaming platform, and a high-quality USB DAC input, will satisfy two-channel audiophiles. Finally, the elegant style and premium build quality of the SPA25 ensures it looks as good as it sounds.

EISA
PREMIUM
AV AMPLIFIER
2023-2024

Denon AVC-A1H

The current state-of-the-art in AV amplifier design, Denon's AVC-A1H marries 15.4-channel processing to a 15-channel power output and is therefore primed for the most expansive of home Theater systems. The attention to detail reserved for the brand's 'A1' class is in evidence, from the amp's hefty 11.5kg EI-Type transformer and separate power supply for its DAC stage, to the 32-bit DSP engine and optimised circuit layout. This high-quality engineering, coupled to both Audyssey MultEQ XT and Dirac Live calibration options, results in a reference-level audio performance from movies and music. Denon's flagship blends energy and scale with breathtaking resolution, detail and clarity. No other multichannel integrated amplifier can match it...

EISA
BEST BUY SOUNDBAR 2023-2024

JBL Bar 300

Ready to give a flatscreen TV a serious sonic boost, but from a compact, easy-to-accommodate design, JBL's Bar 300 punches well above its affordable price point. Its six drivers and onboard amplification dovetail with MultiBeam processing and Dolby Atmos decoding to create a well-balanced, full-range sound with notable effects placement and steering. For this generation JBL has both refined its remote handset and introduced a new app controller, making it simple to adjust the Bar 300's EQ settings, run its auto-calibration routine, and stream music fuss-free. This soundbar enters a hotly contested market and coolly claims the top spot.

EISA
SOUNDBAR 2023-2024

Loewe klang bar3 mr

Loewe's smartly dressed klang bar3 mr aims to attract anyone who desires immersive TV sound, without the hassle. Supporting Dolby Atmos, this 3.1-channel model serves up enveloping sonics rich in detail and excitement. Musical performance is great too, and because of its pair of 100mm top-mounted woofers, it doesn't require a subwoofer to sound mighty. One, however, can be added wirelessly by those desiring more bass impact, as can wireless rears to take the surround experience to another level. Employing the DTS Play-Fi platform, the klang bar3 mr possesses a variety of streaming options and caters to a multi-room setup – among its connections are pre-outs for five channels, a unique feature that enables audiophile setups with active speakers.

EISA
PREMIUM SOUNDBAR 2023-2024

Bang & Olufsen Beosound Theater

Employing a range of drivers, including a coaxial center array and dual 165mm woofers, the Beosound Theater delivers a spacious and well-defined sound with crisp detail and powerful bass, all from a single, gorgeous cabinet. Movie soundmixes are immersive and dramatic, while music listening – either stereo or upscaled to the Dolby Atmos soundfield – benefits from the soundbar's remarkable midrange presentation. Extensive connectivity includes four HDMI ports and wired/wireless PowerLink for adding additional B&O speakers, while operation is easy via a partnering app that opens the door to streaming music services. A customisable design even allows the Beosound Theater's chassis to match TVs of different sizes.

EISA

SOUNDBAR SYSTEM 2023-2024

Yamaha True X series

A home Theater system of impressive flexibility, Yamaha's True X combines the SR-X40A soundbar, SW-X100A subwoofer and WS-X1A surround speakers, all connecting to each other wirelessly for a slick, authentic 3D audio experience. Whether crafting immersive soundscapes from Atmos movie soundtracks or games, or playing music, the performance always captivates with its energy, detail and precise soundstaging. The fabric-wrapped enclosures are on-trend, as is the system's provision of control via remote, app, or voice through its in-built Alexa microphone. And there's another trick up this system's sleeve – both rears can operate in solo mode as fully portable (and waterproof) Bluetooth speakers. For Yamaha, X really does mark the spot.

EISA

HOME THEATER POWER AMPLIFIER 2023-2024

Musical Fidelity M6x 250.7

A perfect partner for power-hungry loudspeakers in a home cinema, the M6x 250.7 offers dynamic headroom, rich bass and a feeling of effortless energy from its rated 7x150W amplification. Inside the all-metal chassis, fronted by a milled aluminium fascia, a pair of Musical Fidelity's 'Super Silent' toroidal transformers feed into seven independent amp modules, each with their own heat-sinking – bi-amping is provided via daisy-chain outputs on the unit's rear panel, above its choice of balanced or unbalanced inputs. A heavyweight amplifier in terms of both build quality and performance, with a wonderfully transparent sound, the M6x 250.7 is a multichannel marvel.

EISA

HOME THEATER SUBWOOFER 2023-2024

Perlisten D212s

Perlisten's D212s has a fearsome specification, its two custom-designed 300mm woofers, arranged in a push-pull configuration and powered by a 2.4kW amp stage, claiming a bass extension below 20Hz. But these specs only hint at the full story: in your home Theater this meticulously engineered subwoofer offers a fast, dynamic performance, with expert control over its output. Hard-hitting LF effects are delivered with slam, while atmospheric bass details benefit from the D212s' impressive subtlety. Playing a vital part here is advanced DSP, which – in conjunction with Perlisten's app controller – enables in-depth tuning to suit the listening environment, complete with parametric EQ. This is a subwoofer with both brawn and brains!

EISA
LOUDSPEAKER SERIES 2023-2024

KEF R Series

Technologies developed for KEF's higher-end loudspeakers, including the latest-generation Uni-Q driver with Metamaterial Absorption Technology (MAT), inform the design and performance of its stunning R Series. A seven-model range comprising floorstander, standmount, center and Dolby Atmos-enabled surround options, it's suited to both home Theater and hi-fi enthusiasts alike. Whether used for music or movies, across the speakers there's a dynamic, detailed and thrillingly natural sound combining controlled, extended lows with open, wide-reaching highs. And the various color options, including special editions for the R3 standmount and R7 tower, will have these gorgeous-looking cabinets fitting right in.

EISA
POWERED STANDMOUNT LOUD-SPEAKERS 2023-2024

Klipsch The Sevens

This powered bookshelf/standmount model takes a design cue from the American brand's 'Heritage' speakers and combines it with a forward-thinking specification – the result is a package notable for its styling, feature set and performance. Tractrix horn-loaded tweeters and 165mm bass/mid units are pushed into action by custom DSP and beefy internal amplification. The Sevens' sound is bass-rich, largescale and packed with detail, and can be fine-tuned to suit personal taste through Klipsch's intuitive Connect app. Comprehensive connectivity including HDMI ARC, USB-B, Bluetooth, analogue (inc. MM phono), plus hi-res music playback to 192kHz/24-bit, ensures this is a system that's ready for anything!

EISA Home Theater Video Awards 2023-2024

EISA
BEST BUY MINI LED TV 2023-2024

Hisense 65U7KQ

The entry point into Hisense's 120Hz 'ULED' TV line-up, the 65U7KQ combines a 4K panel with a Mini LED backlight offering 384 dimming zones. This technology, allied to Quantum Dot color delivery, results in crisp pictures with excellent local contrast and vivid hues. Dynamic Dolby Vision IQ, HDR10+ and HDR10+ Adaptive formats are supported, with the TV's color temperature and brightness sensors measuring the room and adjusting images accordingly. It's a feature-rich set too, with HDMI 2.1 inputs accepting signals up to 4K/144Hz, Apple AirPlay 2 support, plus Hisense's bespoke VIDAA U7 operating system granting access to a wide range of apps. The 65U7KQ is a superb mid-range option that impresses with its performance, features and style.

EISA
BEST BUY OLED TV 2023-2024

Philips 55OLED808 (55OLED818)

An excellent image performance and a wallet-friendly price make the 55OLED808 the OLED TV to beat in the competitive mid-range market. Building on the success of the brand's previous 8 series models, this new set showcases improvements to Philips' P5 processing engine, Ambilight system, user interface and more. It's a sublime performer with 4K HDR content, benefiting from superior light control and contrast, plus skilful tone-mapping, while HD material is effectively upscaled. As expected from a Philips screen, there's a wealth of picture adjustments on offer to tune the 55OLED808's images, plus well-judged presets for ease of use. Google TV smarts, HDMI 2.1 connectivity and a punchy integrated sound system complete a winning proposition.

EISA
BEST BUY PROJECTOR 2023-2024

XGIMI Horizon Ultra

This home cinema projector takes XGIMI's HORIZON range to new heights. A 4K resolution model, its 'Dual Light' engine combines the brightness and color accuracy of LED with the contrast and sharpness potential of laser. Added to this are Dolby Vision HDR for optimal playback of premium content, and adjustment of its dynamic iris for performance fine-tuning. Its crisp, vivid images can be accompanied by powerful sonics from a built-in Harman Kardon sound system, while Android TV integration allows control via voice and smartphone, in addition to a huge app selection. Set-up versatility including auto-focus and auto-keystone make the HORIZON Ultra easy to install, and with its smart design and compact chassis you can place it anywhere in your home without compromising on style or performance.

EISA
HOME THEATER PROJECTOR 2023-2024

BenQ W4000i

BenQ's expansive projector stable includes many multi-use designs, but the W4000i focuses on full home cinema duties. There's magnificent clarity and color from this beamer's combination of the latest and largest 0.65in 4K DLP panel, a 4LED light source to deliver a claimed 3200 ANSI Lumens brightness, and BenQ's exclusive CinematicColor technology yielding 100% of the DCI-P3 color gamut. HDR-PRO technology, with Local Contrast Enhancer, optimises dynamic contrast in HDR10 and HLG playback. And while designed for serious cinephiles, this is still a smart projector, with a Wi-Fi dongle introducing Android TV and all its apps, including Netflix. Versatile setup, fuss-free operation and a quality performance make BenQ's W4000i a brilliant home Theater solution at the price.

EISA
MINI LED TV
2023-2024

Hisense 65U8KQ

Hisense's 65U8KQ leverages the latest advancements in Mini LED technology and Quantum Dot panel design to deliver a stunning picture performance. Dividing its Mini LED backlight into 1008 zones, with precise local dimming, yields an enhanced contrast with deep blacks and bright whites, complemented by rich colors. To further optimise its visual impact, the TV supports Dolby Vision IQ, HDR10+, HDR10+ Adaptive, as well as Filmmaker Mode for movie playback as the director intended – and when it comes to sound, the built-in Dolby Atmos 2.1.2 speaker system is equally cinematic. Add in the 65U8KQ's gamer-friendly connections, VIDAA U7 smart system, and sleek, modern design, and you have a TV with real appeal.

EISA
GAMING TV
2023-2024

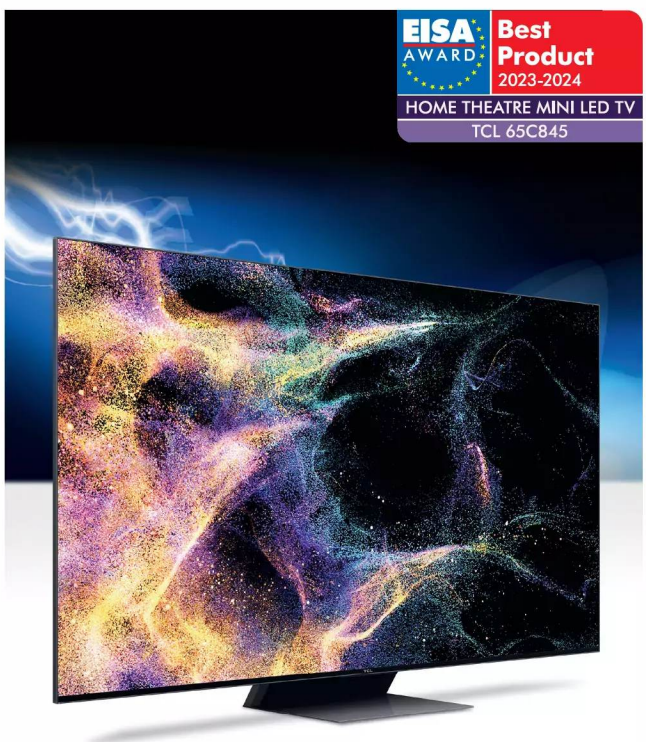
TCL 55C745

A high-quality display is needed to tap into the potential of the latest generation of games consoles and PCs, and TCL's 55C745 is up to the challenge. This 55in TV appeals with its gaming bar interface and QLED panel capable of a 4K/144Hz VRR presentation (plus Full HD at a lightning-fast 240Hz). Key features including ALLM, Dolby Vision gaming and FreeSync Premium Pro are also incorporated, so there's no tearing or stuttering while you enjoy sharp and clean low-latency images. But this TV is not just for gamers: its color handling, brightness, HDR abilities and full-array local dimming translate into a dynamic movie performance, while the Google TV interface brings streaming apps and voice control. However you plan to use it, the 55C745 is superb value for money.

EISA
HOME THEATER MINI LED TV
2023-2024

TCL 65C845

TCL continues to extend the performance of Mini LED technology, the C845 series this year doubling the zones and upgrading the LEDs, along with a host of other tweaks for results that rival OLED panels and in some key areas outperform them. That includes brightness, which in the temptingly priced 65C845 can hit 2000-nit peaks during HDR playback across HDR10, HDR10+ and Dolby Vision IQ, with full-white levels of 800 nits. This 65in TV's performance will thrill movie fans and gamers alike (the set is fully compatible with latest-generation consoles), as will a comprehensive feature list that includes Google TV, an Onkyo-designed speaker system, and IMAX Enhanced certification. This is another fine all-round winner from China's TCL.



EISA
FAMILY TV
2023-2024

Philips 55PUS8808 (55PUS8818)

This 55in Ambilight-enabled LCD TV from Philips has your living room in its sights and succeeds thanks to its S-IPS panel that supports a wide viewing angle, and a punchy, bright picture performance that isn't fazed by ambient light. Positioned by this iconic brand as a home entertainment all-rounder, the 55PUS8808 fits the bill by virtue of its accomplished 2x40W audio, multi-format HDR handling, gaming credentials and content-rich Google TV smart platform. There's even DTS Play-Fi integration, enabling the TV to become part of a multiroom audio system, or take on center channel duties in a surround sound setup. Philips' elegant styling also deserves a thumbs up, but it's the 55PUS8808's image quality and affordable pricing that seals the deal.

EISA
GIANT TV
2023-2024

TCL 98C735

For those seeking to turn a living room into a home cinema with larger-than-life images, TCL's 98C735 is the answer. A 98in TV with Direct LED backlight and Quantum Dot panel technology, its wall-filling pictures combine deep blacks with excellent shadow detail and deliver stunning highlights thanks to impressive peak brightness and local dimming. HDR movies, whether in HDR10, HDR10+ or Dolby Vision IQ, dazzle with color, while a wide viewing angle and excellent anti-reflection ability guarantee a cinematic experience for a big audience. Full gaming compatibility for high-end consoles and PCs, plus Google TV integration, give this giant-sized screen all-rounder status, and at a price that doesn't break the bank.

EISA
PREMIUM OLED TV
2023-2024

Samsung 77S95C

Class-leading HDR brightness, deep black levels and a vibrant, wide color performance cement this Samsung TV's premium status. Enabling the 77S95C's immaculate imagery is Quantum Dot OLED technology, here in second-generation guise and benefiting from new panel driving software and a refined light path. Coupled to this is Samsung's upgraded Neural Quantum Processor 4K, which helps finesse motion, clarity, color and more. When it comes to audio, a multi-speaker array ranged around the screen brings an immersive, cinematic feel to movies, TV and gaming, and the design of this 77in model is equally inspiring, from the One Connect box for a clutter-free installation to the high-quality finish of its ultra-slim frame. Looking for the ultimate OLED TV? Look here...

EISA
HOME THEATER DISC PLAYER 2023-2024

Magnetar UDP800

For a high-quality AV experience, there is still nothing better than Ultra HD Blu-ray discs, especially when delivered by a premium player. Magnetar's UDP800 is the star you need to illuminate your home Theater, combining DVD, Blu-ray and Ultra HD Blu-ray playback with handling of music formats including DVD-A and SACD. Comprehensive user menus and connectivity make this disc-spinner user friendly, while its high-end construction befits the price tag. The UDP800 delivers 4K discs (including Dolby Vision or HDR10+) with pin-sharp detailing and smooth color gradations via HDMI, but switch to music though its analogue outputs (RCA or XLR) and its performance is equally captivating. The UDP800 is the long-awaited new king of discs.

MORE EISA AWARDS 2023-2024

Photography Expert Group

EISA CAMERA OF THE YEAR 2023-2024	NIKON Z 8
EISA ADVANCED FULL-FRAME CAMERA 2023-2024	SONY ALPHA 7R V
EISA FULL-FRAME CAMERA 2023-2024	CANON EOS R6 MARK II
EISA CONTENT CREATOR CAMERA 2023-2024	SONY ZV-E1
EISA APS-C CAMERA 2023-2024	FUJIFILM X-H2
EISA BEST BUY CAMERA 2023-2024	CANON EOS R8
EISA VIDEO CAMERA 2023-2024	PANASONIC LUMIX S5IIX
EISA LENS OF THE YEAR 2023-2024	SONY FE 20-70MM F4 G
EISA WIDEANGLE ZOOM LENS 2023-2024	TAMRON 20-40MM F/2.8 DI III VXD
EISA STANDARD PRIME LENS 2023-2024	SONY FE 50MM F1.4 GM
EISA PORTRAIT LENS 2023-2024	NIKON NIKKOR Z 85MM F/1.2 S
EISA TELEPHOTO LENS 2023-2024	CANON RF 135MM F1.8L IS USM
EISA SUPER-TELEPHOTO LENS 2023-2024	NIKON NIKKOR Z 400MM F/4.5 VR S
EISA TELEPHOTO ZOOM LENS 2023-2024	TAMRON 50-400MM F/4.5-6.3 DI III VC VXD
EISA SUPER-TELEPHOTO ZOOM LENS 2023-2024	SIGMA 60-600MM F4.5-6.3 DG DN OS | SPORTS
EISA MACRO LENS 2023-2024	OM SYSTEM M.ZUIKO DIGITAL ED 90MM F3.5 MACRO IS PRO

Combined Award with Mobile Expert Group

EISA MULTIMEDIA SMARTPHONE 2023-2024	SONY XPERIA 1 V

Hi-Fi Expert Group

EISA STANDMOUNT LOUDSPEAKERS 2023-2024	MOFI SOURCEPOINT 8
EISA FLOORSTANDING LOUDSPEAKERS 2023-2024	BOWERS & WILKINS 703 S3
EISA PREMIUM FLOORSTANDING LOUDSPEAKERS 2023-2024	PERLISTEN R7T
EISA HIGH-END LOUDSPEAKERS 2023-2024	WILSON AUDIO ALEXIA V
EISA WIRELESS BOOKSHELF LOUDSPEAKERS 2023-2024	KEF LSX II
EISA WIRELESS ON-WALL LOUDSPEAKERS 2023-2024	SYSTEM AUDIO SILVERBACK 1
EISA WIRELESS FLOORSTANDING LOUDSPEAKERS 2023-2024	DYNAUDIO FOCUS 50
EISA HEADPHONES 2023-2024	MEZE AUDIO 109 PRO
EISA STREAMER 2023-2024	IFI AUDIO NEO STREAM
EISA DAC 2023-2024	FERRUM AUDIO WANDLA
EISA DIGITAL PLAYER 2023-2024	VOLUMIO RIVO
EISA HIGH-END CD PLAYER 2023-2024	HEGEL VIKING
EISA TURNTABLE 2023-2024	THORENS TD 204
EISA VINYL SYSTEM 2023-2024	PRO-JECT T2 W
EISA INTEGRATED AMPLIFIER 2023-2024	NAD C 3050
EISA BEST VALUE STREAMING AMPLIFIER 2023-2024	SVS PRIME WIRELESS PRO SOUNDBASE
EISA COMPACT STREAMING AMPLIFIER 2023-2024	BLUESOUND POWERNODE EDGE
EISA STREAMING RECEIVER 2023-2024	YAMAHA R-N2000A
EISA HIGH-END INTEGRATED AMPLIFIER 2023-2024	MUSICAL FIDELITY NU-VISTA 800.2
EISA HIGH-END STREAMING AMPLIFIER 2023-2024	HEGEL H600
EISA HIGH-END HEADPHONE SOLUTION 2023-2024	DCS LINA SYSTEM
EISA HIGH-END HEADPHONES 2023-2024	YAMAHA YH-5000SE

EISA
PORTABLE PROJECTOR 2023-2024

XGIMI MoGo 2 Pro

This compact Full HD DLP projector is a triumph of both brightness and intelligent operation, with the MoGo 2 Pro's 400 ISO Lumens output overcoming even ambient daylight. Its rich images, up to 120in, achieve D65 color temperature and 90% of the DCI-P3 gamut. They are rock-solid too as XGIMI's excellent 'Intelligent Screen Alignment' scans 10,000 data points to automatically straighten and focus the pictures while avoiding obstacles, even from off-axis positions, and without interrupting your show. Sources can be connected over HDMI and USB, and there's Android TV 11.0 to provide thousands of apps, Google Assistant and Chromecast. The projector's stereo speaker array also packs a punch, making it the all-round solution for those who want to take their entertainment anywhere.

EISA
EXPERT IMAGING AND SOUND ASSOCIATION

Combined Award with Home Theatre Audio Group

EISA LOUDSPEAKER SERIES 2023-2024	**KEF R SERIES**
EISA POWERED STANDMOUNT LOUDSPEAKERS 2023-2024	**KLIPSCH THE SEVENS**

Combined Award with Mobile Devices Expert Group

EISA PREMIUM WIRELESS HEADPHONES 2023-2024	**T+A SOLITAIRE T**
EISA MOBILE DAC 2023-2024	**IFI AUDIO GO POD**

Mobile Devices Expert Group

EISA BEST BUY SMARTPHONE 2023-2024	**HONOR 90**
EISA CONSUMER SMARTPHONE 2023-2024	**OPPO RENO10 PRO**
EISA SMARTWATCH 2023-2024	**HONOR WATCH GS 3**
EISA PREMIUM PORTABLE SPEAKER 2023-2024	**BANG & OLUFSEN BEOSOUND A5**
EISA PREMIUM SMARTWATCH 2023-2024	**HUAWEI WATCH ULTIMATE**
EISA BEST BUY WIRELESS HEADPHONES 2023-2024	**PHILIPS FIDELIO L4**
EISA IN-EAR HEADPHONES 2023-2024	**PHILIPS FIDELIO T2**
EISA MOBILE DAC 2023-2024	**IFI AUDIO GO POD**
EISA BEST BUY PORTABLE SPEAKER 2023-2024	**PURE WOODLAND**

Combined Award with Photography Expert Group

EISA MULTIMEDIA SMARTPHONE 2023-2024	**SONY XPERIA 1 V**

Combined Award with Mobile Devices Expert Group

EISA PORTABLE PROJECTOR 2023-2024	**XGIMI MOGO 2 PRO**

Combined Award with Hi-Fi Expert Group

EISA PREMIUM WIRELESS HEADPHONES 2023-2024	**T+A SOLITAIRE T**

In-Car Electronics Expert Group

EISA IN-CAR HEAD UNIT 2023-2024	**ALPINE HDS-990 STATUS**
EISA IN-CAR AMPLIFIER 2023-2024	**GROUND ZERO GZUA 6SQ**
EISA IN-CAR DSP AMPLIFIER 2023-2024	**MOSCONI GLADEN ONE 8|10 DSP**
EISA IN-CAR SOUND PROCESSOR 2023-2024	**ESX QE812SP**
EISA IN-CAR DSP SOFTWARE 2023-2024	**AUDISON BIT DRIVE**
EISA IN-CAR SPEAKER SYSTEM 2023-2024	**GROUND ZERO GZPC 165.3SQ-ACT**
EISA IN-CAR SUBWOOFER 2023-2024	**MOREL ULTIMO POWERSLIM PS12D**
EISA IN-CAR OEM PREMIUM AUDIO SYSTEM 2023-2024	**MASERATI GRANTURISMO WITH SONUS FABER HIGH PREMIUM AUDIO SYSTEM**
EISA IN-CAR INTEGRATION 2023-2024	**HELIX COMPOSE PLATFORM**
EISA MOTORCYCLE AUDIO COMPONENT 2023-2024	**ROCKFORD FOSGATE HD9813RG-STAGE3**

SAMSUNG QN95C 4K NEO QLED TV

4K Flagship

By Mark Henninger

RATING

PERFORMANCE

FEATURES

ERGONOMICS

VALUE

FOR THE past ten years we've watched 4K LCD and OLED TVs compete in the wake of plasma's demise. There was the death of 3D. And for a while, we even had curved screens to contend with. At first OLED had a distinct picture quality advantage over LCDs, thanks to its use of emissive pixels that can fully shut off individually and deliver true blacks. However LED-lit LCD keeps evolving and keeping pace while offering a different set of benefits.

Samsung's name for mini-LED FALD LCD panels featuring quantum dots is Neo QLED, with the QN95C being the king of the 4K Neo QLEDs. This type of TV employs a transmissive LCD panel. These TVs are capable of very high brightness, with double or even triple the light output of what OLEDs can achieve. They rely on the modulation of the backlight array to render deeper blacks than the panel's native contrast allows.

Although FALD backlights yielded imperfect results for many years, the introduction of mini-LED FALD arrays with hundreds or even thousands of zones—combined with improvements in processing—has revolutionized the field.

The results speak for themselves, with this TV you get both deep blacks and brilliant highlights. The intensity can be blinding! Of course the hardware has a lot to do with it. But the processor also contributes by optimizing picture quality and maximizing color fidelity. In culinary terms, the hardware is the ingredients needed to make an exceptional dish, while the software is the chef's expertise in delicately balancing and harmonizing flavors.

The QN95C is particularly adept at handling high contrast scenes. It offers impressive picture quality under any lighting conditions.

The QN95Cs capabilities do not come cheap. But it's worth remembering the way things work with TVs, especially premium models. Historically speaking when they first launch the prices are considerably higher than the sale price on Black Friday. This is why you can still pick up its predecessor—the QN95B—for half the price of this TV. That economic reality is no different than any other year; you have to pay a premium to be an early adopter. But with a bit of patience you can also count on the annual pricing cycles to work in your favor.

FEATURES

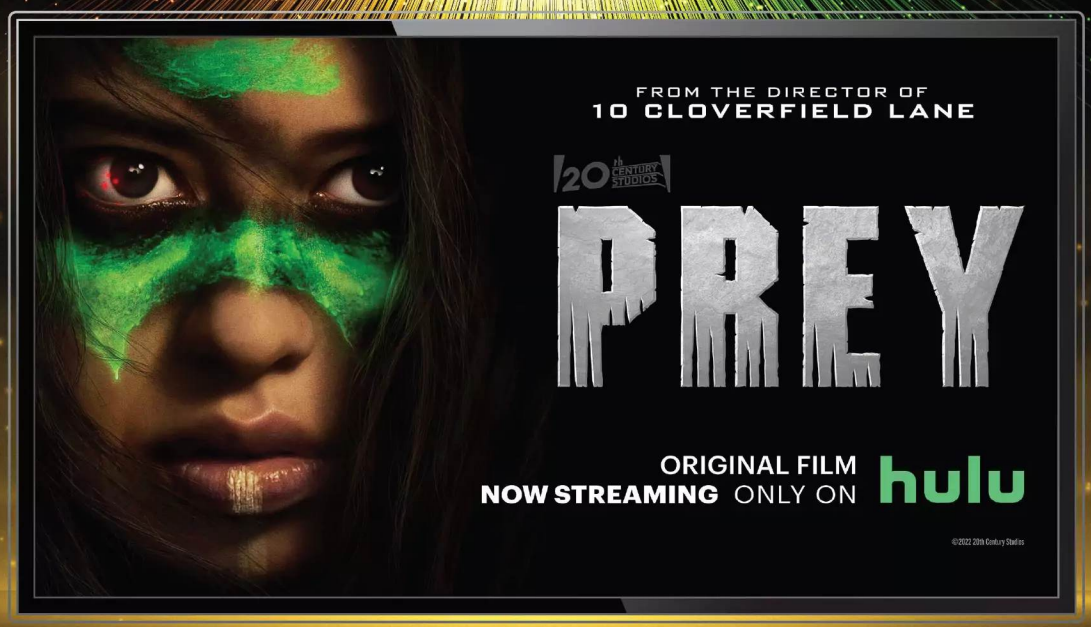
This review covers the 65-inch version of the QN95C. It is also available in 75-inch and 85-inch sizes. It comes with a pedestal stand. To maintain its slab-like, flat and slim profile, this TV relies on efficient and clever cable management. It builds on the looks and accomplishments of 2022's QN95B model and sports what Samsung refers to as the Infinity One Design.

It is wall-mountable and sits nearly perfectly flush with a wall due to its flat back panel.

Support for HDR includes standard HDR10, HDR10+, and HLG. As has always been the case with Samsung, Dolby Vision is nowhere to be found. Instead Samsung offers its own dynamic tone mapping feature that users can toggle on or off. Also, with HDR, it's worth noting that powerful TVs, like this one, can achieve very high peak luminance. As a result, tone mapping becomes unnecessary for the vast majority of content. Therefore the benefit of dynamic tone mapping—fitting the peak brightness within the capabilities of a particular

When it comes to great high dynamic range performance, one format delivers an amazing experience on Hulu.

HDR10+



Hulu subscription required. Terms apply.

Only HDR10+ offers such a compelling combination of benefits, including outstanding brightness and contrast; robust standardization; easy implementation; global certification; no licensing fees; and seamless compatibility with HDR10.

All of which is why Hulu uses HDR10+ to achieve incredible picture quality for the critically acclaimed 20th Century Film *Prey*, which received 6 EMMY® Nominations including Outstanding Television Movie. It's an all-new entry in the highly popular Predator franchise.

For more information, go to **hdr10plus.org**.

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SAMSUNG QN95C 4K NEO QLED TV

display—essentially becomes irrelevant.

But with great brightness comes great responsibility to prevent artifacts. Samsung calls its mini-LED FALD technology "Ultimate UHD Dimming Pro" and this is what sets it above the QN90C, which is missing the "Pro" designation.

Samsung leaves nothing on the table when it comes to gaming. With its HDMI 2.1 inputs this TV offers variable refresh rate at speeds up to 144Hz, even in 4K. This is above and beyond the 120 Hz QN90C. The result is ultra-low input lag and incredibly smooth performance that takes full advantage of not only the latest gaming consoles but also whatever graphics a high-powered gaming PC can dish out.

It is the potent combination of mini-LED and quantum dots that deliver wide color gamut at high brightness. Not merely high peak brightness, but also the high overall brightness that's key to making a TV look good in a brightly lit space, like a living room in the daytime.

Still, software algorithms challenge hardware advancements in improving picture quality. Samsung's Neural Quantum Processor 4K handles various picture processing tasks such as noise reduction, motion interpolation, tone mapping, and color correction without missing a beat.

For audio, you get Dolby Atmos support as well as Samsung's Object Tracking Sound+ which use an array of speakers located on each side of the rear panel and six ultra-slim woofers arranged in a row near the bottom of the rear. You also get Samsung's Q-Symphony feature that allows the TV to become one cohesive system when used with compatible Samsung soundbars like the 11.1.4-channel Q990C ($1499) featured in this review.

This TV's smart feature set is incredibly deep. It can stream movies, shows and even live TV in 4K HDR. You can also pair a gaming controller and stream video games.

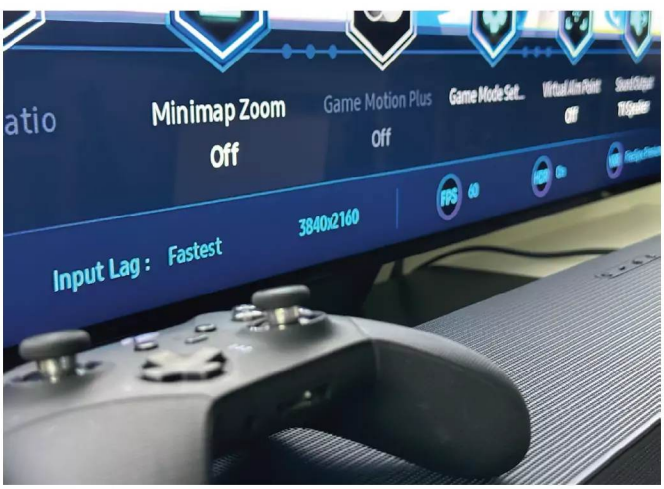
SETUP

Setup is typical for a Samsung TV. Assembly is pretty easy and once the TV itself is put together, you are best off using Samsung's SmartThings app to get online. Once connected, there's a ton of smart features to dig through along with too many adjustable options to list here.

When you first get a TV it is crucial to choose an optimal primary picture mode. With this Samsung the two non-gaming modes of note are Movie and Filmmaker. Both are highly accurate without any further adjustment. I find Filmmaker mode to sometimes be a little too faithful while the Movie mode presents the more compelling and visually appealing image—even if it's not technically the absolute closest to match to whatever mastering display was used).

For this review I added Samsung's top-of-the-line Q990C soundbar. It is designed to pair seamlessly by leveraging the TV's Q-Symphony audio feature, which combines the output of the speakers on the sound bar with the built in speakers. You also get the benefit of unified remote control, you can adjust the soundbar with the TV remote.

My sources include an Apple TV 4K, an Xbox Series X, and a Sony UDP-X700 Ultra HD Blu-ray Player. And in order to push the TV to its limits, I hooked up a gaming PC featuring graphics powered by a NVIDIA RTX 3080 Ti. The TV's built in apps also got a workout.



Specs

DIMENSIONS (WxHxD, inches) 56.9 x 32.6 x 0.8 (without stand)
DISPLAY TYPE: Quantum dot LED FALD
WEIGHT: Jiwhdvihdv
VIDEO INPUTS: Jiwhdvihdv
AUDIO OUTPUTS: Jiwhdvihdv
OTHER: USB, ATSC 1.0/3.0, (NEXTGEN TV) ATSC/ClearQAM
STAND TYPE: Pedestal

HANDS-ON

This TV offers exquisite picture quality right out of the box. Choosing a picture mode that matches your usage scenario is all you need to do. Game and Movie modes wound up being the most useful to me but I am open minded and can see some viewers liking the punchy, somewhat processed look of the Standard mode, especially for TV content.

A common trope in TV reviews is that LCD picture quality is getting that much closer to OLED, ever playing catch-up. But I don't think it's fair to pigeonhole this TV in such a manner. There are many cases where the QN95C matches or exceeds the performance of an OLED TV. Certainly, in any situation where you've got a lot of ambient light, it is able to outshine an OLED and deliver a more vibrant image with more than twice the full screen brightness of an OLED, as well as far brighter peak highlights.

Where you'll find the emissive pixels of OLED enjoying an advantage is on a scene such as a starfield where the peak brightness needs to be focused in an extremely fine pinpoint area and then transition directly to pure black. This TV won't match an OLED in that task. But if you feed it a wide variety of bright scenes—for example a nature documentary or sports—this TV vastly outshines OLEDs.

A consistent trend among TV makers is improved accuracy with out-of-the-box settings, particularly with movie or cinema modes. If you have a compatible phone, Samsung lets you use it to further refine color accuracy with its Smart Calibration function.

THE HARRY POTTER TEST

The QN95C TV stands out for its exceptional handling of complex visual scenes, such as one featuring Voldemort in Harry Potter and the Deathly Hallows Part II. While many displays struggle with rendering this scene's darkness and shadow details, the QN95C outperforms. Over the years, I've observed TVs progressively improving their handling of such challenging scenes, and the QN95C is a testament to that evolution.

Regarding 4K streaming, 2023 has reached a milestone. Films like Avatar: The Way of Water and John Wick: Chapter 4 look and sound almost identical to their Ultra HD Blu-ray Disc counterparts when streamed on the QN95C. The colors are vivid, and the contrast is striking, often matching or surpassing an OLED's performance in the same viewing conditions.

That said, the QN95C is not without its drawbacks. Specifically, the TV can show FALD (Full Array Local Dimming) artifacts like blooming or non-uniformity if improperly configured. These artifacts become noticeable mainly when the TV operates at its brightest settings with local dimming maxed out. However, the TV's engineering minimizes these issues when set up correctly.

In specialized viewing modes like Movie and Filmmaker, the QN95C's local dimming operates flawlessly. There's no distracting artifacts, and it renders shadows and blacks with extraordinary fidelity. The deep blacks, in particular, approach the 'inky' quality typically attributed to OLED displays.

Lastly, the QN95C performs exceptionally well in bright rooms. Unlike many TVs where bright conditions can wash out the image, this TV retains its vibrancy and color accuracy, even outshining an OLED. For instance, the aforementioned challenging Harry Potter scene remains visually captivating in a sunlit room, underscoring the TV's robust capabilities.

GOING VERTICAL FOR ART

This TV works in both horizontal and vertical orientations. That, combined with its flat slab-like design inspired me to mount it on an easel and create an art show "movie" in vertical 4K. Although Samsung also makes The Frame—which is a TV designed to show off art—the S95C fooled people into thinking they were seeing some sort of giant glossy photo print.

The artwork is both colorful and intricately detailed. I put the TV in an art gallery where I held a show of my AI art, and it held up even with bright sunlight and the gallery lights making for a very challenging environment. This TVs high brightness, wide viewing angles, vivid yet accurate color, effective anti-reflective coating, and excellent contrast all came into play. It can hold its own in an art gallery.

A GAMING CHAMPION

For gaming, the impact of the QN95C's brightness, contrast, and color reproduction capabilities stand out. With *Microsoft Flight Simulator* running on my PC I was able to hit 144 Hz in 4K and HDR. The realism is breathtaking and with midday clear skies dialed in, it's bright enough to make you squint if you look at the sun!

If I'm playing video games, I'm playing Grand Theft Auto Online on Xbox Series X. During the nighttime, Los Santos has a Technicolor film noir glow. Streetlights, car headlights, and lit up buildings have depth and detail that you intuitively interpret as representative of reality. My retinas physiologically recognize it as more authentic.

You don't even need a gaming console or PC; with the Gaming Hub, you can pair an Xbox or PS5 controller and stream games directly using various services (subscriptions required) such as Xbox Cloud Gaming, Nvidia GeForce Now, Google Stadia, Amazon Luna, Utomik, Antstream Arcade, and Blacknut Cloud Gaming.

I have gigabit Internet service and live close to a data center, so my positive experience with these services may not be a reflection of what you'd get. For those gamers, a console or PC is the way to go. Also, this TV's capabilities mean that only a PC equipped with the latest/greatest video card and truly leverage what it offers.

Q Symphony Sound

The QN95C's built-in sound is good for a slim-profile TV but doesn't compare to a high-quality soundbar or AVR system. However, when paired with the Q990C Atmos soundbar and Q Symphony 3.0 feature activated, the audio experience becomes cinematic and immersive.

The TV's edge-located speakers complement the soundbar by focusing sounds on-screen and elevating vocals. While it doesn't replace an AVR system, it does offer a high-quality audio experience, particularly for dialogue which seems to emanate from the screen's center.

CALIBRATION INSIGHTS

If you are a perfectionist who plans to have this TV calibrated, then you will be pleased to know that it can achieve a very high degree of accuracy. Samsung's calibration controls do allow for very precise tuning. If you don't plan to have it professionally calibrated, you might be happy to know that you can run a calibration at home using your phone and potentially achieve an improvement. Running the routine only takes a minute or two so it's worth a try.

The takeaway from profiling this TV's various picture modes is that if you use the Movie or Filmmaker mode, or apply similar settings to the Game mode, the picture's accuracy will be close enough to calibrated that most owners will see no need to go further. A professional calibration is simply not necessary unless your intention is to use this TV for professional color mastering or color correction.

CONCLUSION

Over the years, 4K TVs have evolved substantially, transitioning from basic SDR (Standard Dynamic Range) models to the sophisticated HDR (High Dynamic Range) versions we see today. In this context, Samsung's QN95C emerges as a powerhouse, delivering an exceptional HDR experience without compromise. Particularly noteworthy is the TV's Movie Mode, which boasts precise color tuning and less aggressive processing compared to other available modes. Whether you're watching in a pitch-dark room or a brightly lit space, the display quality remains consistent. For gamers, this TV offers a winning combination of rapid response times and remarkable image fidelity.

While cost-effective alternatives exist, the QN95C sets itself apart through a harmonious blend of elegant design, superior hardware, cutting-edge picture processing, and a comprehensive set of smart TV features. It's a premium offering that justifies its high price tag. Yet, there's a nuance: Samsung's 4K S95C QD-OLED provides in some ways a superior viewing experience (in dark settings) and is priced similarly. The QN95C, however, offers a larger 85" screen size and much higher brightness for daytime use. Essentially, this TV is a versatile workhorse, adept at handling varied viewing conditions from bright living spaces to dark home theaters.

When combined with the Q990C Atmos soundbar, the system reaches a whole new level of audio fidelity. The pairing minimizes cable clutter and simplifies the installation process, creating a state-of-the-art home entertainment system that is not only easy to set up but also uncomplicated to operate. All in all, this Samsung flagship 4K TV and soundbar combo offer a compelling experience for any home entertainment enthusiast.

At a Glance

- \+ One of the brightest TVs you can buy
- \+ Deep gaming functionality
- \+ Relatively wide viewing angles
- \+ Mounts flat on a wall
- \+ Excellent cable management
- − 65" model is particularly pricey
- − Still no Dolby Vision
- − Quantum-dot OLED has its own charms

Price: $3,299

samsung.com

The Verdict

This sublime ultra-premium multi-use 4K TV has a modern minimalist design and delivers impressive imagery thanks to the use of mini-LED, quantum dots and advanced picture processing. Its premium performance comes at a price but it delivers the goods when it comes to image fidelity.

SONY XV800 X-SERIES BLUETOOTH PORTABLE PARTY SPEAKER

SOUND & VISION TOP PICK

Box Full of Boom

By Mark Henninger

RATING

PERFORMANCE

FEATURES

ERGONOMICS

VALUE

Sony's splash-resistant XV800 party speaker makes a great poolside companion.

IS THERE ROOM for a party speaker in your life? How about this question instead: do you like to have fun? If so, then the answer is yes! This sometimes scorned category stands out in my experience because in recent years, whenever I see people having a good time with music, more often than not it's been some sort of lifestyle, entertainment-friendly, wireless, portable speaker dishing out the tunes. A party speaker.

In the case of the Sony XV800, we're talking about a really large and powerful Bluetooth-connecting party speaker that operates in two modes, upright 360 sound and horizontally, like a more traditional stereo boombox.

SETUP

What setup? Plug it in, charge it up, connect your phone. Done.

A key point to emphasize is that this Sony is truly cordless, unlike some speakers that are merely wireless but need a power cord. The built-in battery means you can leave all the

cables behind if you want. But this speaker also has dual quarter-inch microphone jacks, USB with music playback, a 3.5mm analog aux and optical-digital inputs—so it's not just wireless.

HAVING FUN

As a city dweller, when I first agreed to do this review, I was not sure what to do with the speaker. So I decided to stick it right on top of my center channel speaker, on its side in stereo mode, right in my living room. I listened to it like I would any stereo speakers I evaluate. You know what? Not terrible! I mean don't expect profound stereo imaging out of this thing, or the nuance of a $10,000 stereo. That is certainly asking too much of such a device.

What you can expect is surprisingly balanced and detailed audio reproduction with a healthy dose of bass. This being a Sony, you can boost that bass with the touch of the Mega Bass button. While indoors, boosted bass can get to be a bit too much. What I discovered is that outside, where there is no boundary reinforcement from walls or ceiling, and usually speakers sound relatively thin, if you activate Mega Bass, the resulting sound is actually what you're looking for. It is akin to the indoor sound without the boost.

The good bass is a direct consequence of the large enclosure, the dual (square) woofers and ample amplification. It's a big and heavy speaker, but there is an explicit performance benefit to that size and heft.

Surprisingly, I found the speaker pleasant enough to listen to, that I just kept it on top of the center channel for several days, going through a repertoire of my favorite music tracks. But I knew that wasn't really a representation of how this speaker should be used. I needed an excuse to try it out in the wild, and use it in ways that people would use a party speaker.

And then came the invite. Our friends have a house on the Jersey Shore and suggested we come down for some food, swimming and hanging out on a Friday summer evening. And I thought fantastic, I'll bring the Sony and we'll see if we can have some fun with it.

I stuck it in a car and headed off to the Jersey Shore. But you know, it would have been nice if I could have rolled it to the car. However, that was just not going to happen because of the handle and the wheels being poorly designed. The lack of an extending handle is an Achilles heel of this speaker. I strapped it to a folding hand truck with a bungee cord and rolled it to the car that way, simply because it was a lot easier. But that just highlights how this speaker should have its own internal extending handle and better wheels.

We lucked out in terms of weather and so we spent the evening hanging out, along with some other guests, and enjoyed food, drinks, the swimming pool, and the music. All night, the tunes played through this Sony, despite there being some nice built-in speakers at the house. And that made a real difference, because those "architectural" outdoor speakers are for background music, even if they can play pretty loud. What this speaker does, is make the music itself the focal point.

Soon enough, we were taking requests to play tracks on the Sony, and some of the other guests were asking my wife where they could get the playlist.

The positive qualities of this highly capable speaker were immediately apparent to everyone present. Its four tweeters on the top side that operate when it's in the vertical orientation allow it to have good tonality wherever you stand, sit, or swim. You're not penalized for being behind the speaker.

This makes it great for just placing it out in the open, next to the swimming pool, and everybody can enjoy music. Of course, the wireless and cordless capability, that's pretty much the best part. Next to a pool, you don't want an extension cord that people could trip over and that has household electric current running through it!

Anyhow, the speaker gets really loud and you can hit that Mega Bass button and that makes up for the lack of boundary reinforcement outdoors. Indoors, the Mega Bass could be overwhelming (depending on the music genre) but outdoors it actually fills in the bass so that it sounds natural and really got a lot of compliments about how it was a full-range sound and even when you turned it up, the bass maintained its quality.

Throughout the party we never heard any distortion. We found ourselves turning it down as much as we found ourselves turning it up because it could just basically play louder than you need unless the party gets really wild.

At a Glance

- \+ Works upright and on its side
- \+ Omnidirectional sound
- \+ 25 hour battery life
- \+ Light show & karaoke
- \+ Charge other devices using its battery
- − Poorly designed wheels and handle

Price: $650

electronics.sony.com

In this particular model, there is a fifth tweeter. It's on the front side. When upright, it seems to be on the bottom, but it lets you turn the unit sideways. The speaker has an orientation sensor built in, so it knows when it's horizontal, and in that configuration, it becomes more of a traditional stereo Bluetooth speaker, or you could even call it a boombox. And it sounds really good that way, but it is directional, so you want to aim it at the listening area if you're using that horizontal mode. Back to vertical if you want that 360 dispersion.

Operation is dead simple. Pairing with Bluetooth is a matter of pushing that Bluetooth pairing button, and then choosing the XV800 from the list of available devices. Bluetooth may not be the last word in audio fidelity, but it makes things easy when you are outside and just want to use a phone to supply the tunes.

PLAYLISTS AND PARTIES

I know it is traditional in reviews to list a bunch of music that you listen to and how it all sounded. So here it is. Every track I played sounded loud, powerful and clear, but of course lacked the imaging and soundstage that you get from a true stereo.

When the unit was operating in the horizontal boombox position, it was a little bit better in terms of creating some sort of a stereo

SONY XV800 X-SERIES BLUETOOTH PORTABLE PARTY SPEAKER

image, but that is not what you buy it for. When upright, the sound from the Sony remained crisp wherever you stood, even behind the speaker.

In the process of hanging out, we listened to tracks like "Gypsy Music" by Dub Syndicate off the album *Hard Food*, "Killing Me Softly with His Song," the Fugees from the album *The Score*, and we've got "Somebody's Sins" by Tricky from the album *False Idols*, and "Good Times Roll" by The Cars from their eponymous debut. How about "Universal Traveler" by Air from the album *Walkie Talkie*? The important thing is that the speaker made you want to keep the playlist going.

As alluded to earlier, my primary gripe with the design has nothing to do with the sound quality. Sony got the acoustic stuff right. It is the silly, undersized wheels that are nearly impossible to use on anything other than a completely smooth indoor floor, and even then the whole unit wobbles as you try to pull it from the fixed handle. It does not extend and it's not a tall enough device to get good leverage and be able to pull it that way with any ease. Note to Sony: JBL is the leader in this category and its larger party speakers have extending handles and smooth rolling wheels.

Trying to use the wheels to move the unit is extremely awkward. Most of the time you just have to grab the handles and lift it. Unfortunately, my attempt to use the wheels on the outside patio led to the loss of the rubber pads on the bottom that serve as feet when it is stationary. The two pads that are closest to the wheels just rubbed right off. This speaker should be designed more like a piece of luggage, it is large and heavy and cumbersome to physically carry.

Specs

DRIVERS: 6 (2X 6.75-inch woofers, 3X 2.375-inch tweeters, 2X 1.625-inch tweeters)
CONNECTIONS: Type A USB, 3.5mm stereo analog audio in, optical-digital, Mic1 jack, Mic2/Guitar jack)
WIRELESS: Bluetooth
ACCESSORIES: X
DIMENSIONS (WxHxD, inches): 12.5 x 28.375 x 14.875
WEIGHT (pounds): 40.8125 pounds

But once you have the speaker where you want it, it does put smiles on faces. The battery lasts a long time, and if you dim the room lights it puts on its own light show, like any self-respecting party speaker does. The point is that it's a music device that makes people happy. There's absolutely no reason to become obsessed with what its frequency response curve looks like or anything like that, because that's just not the point. It doesn't do imaging. It just does full-range sound, including deep and satisfying bass, all on its own, as long as you can get it to where you want it.

In my case, I used a compact folding hand truck I bought on Amazon to wheel it around. That gave it the big wheels and handle that it should have to begin with, and it was really easy to wheel it around.

As for the charging and the power, it does take a few hours to charge, but one bonus is that it just uses a standard power cord, not an external transformer wall wart type device, so you don't need to worry about a second bulky object.

CONCLUSION

In an audiophile's dream world, normal people would care enough about perfectionist stereo systems to come over to their house and hang out and discuss how particular recordings sound. And I know that you can join aa audiophile club and be a part of that community, but as a general rule, you're not going to find a bunch of friends gathering at the party interested in any of that at all.

So what this speaker does is bring decent fidelity, and lots of it, to the table. It gives you that power to share good sound with everybody, wherever you are. Ultimately it is a giant boom box. You can enjoy a whole day's worth of great music. And that's about all I really care about is the fact that it's so much fun. A shame about the wheels since it's not exactly portable in the traditional sense.

But if you work around that, the truth is it's extremely portable, in the sense that wherever you decide to put it, it serves as a terrific, self-contained entertainment center. It's pretty much a must for proper tailgating. A whole day and night's worth of fully cordless and wireless musical fun is packed into that box. It is powerful enough to fill a large area with sound and adaptable enough to be used in multiple applications. From football games to picnics in a park, backyard movies or karaoke night a party speaker is a great addition to your entertainment toolbox. Is this Sony the right one? As long as you don't need to roll it around a lot, it could be.

The Verdict

Sony's party speaker impresses with its sound quality and features but its wheels and handle make it difficult to move around.

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JVC HA-A25T

Budget Friendly Buds

RATING

PERFORMANCE ★★★★½

FEATURES ★★★★½

ERGONOMICS ★★★★½

VALUE ★★★★★★

By Leslie Shapiro

I WILL just come right out and admit this: I am an audio snob, perhaps brought on by my early childhood years listening to my dad's Quad Electrostatic speakers or the 25 years spent in professional recording studios. I know good sound quality and I like it. So when I was handed a pair of $70 JVC Marshmallow HA-A25T Noise Canceling True Wireless Earbuds, I scoffed. Will they be able to overcome my bias? Can an affordable earbud perform well? Turns out, the answer is a resounding yes.

The HA-A25T earbud is a part of the Marshmallow lineup from JVC, which shouldn't be confused with the more budget-minded Gumy series, also from JVC. Indeed, the charging case does bear a striking resemblance to a Jumbo Stay-Puft, but this is only applicable for the white colorway. The HA-A25T is also available in black.

My snobbishness (Dear editor, is that really a word? If not, please make it one) started with the unboxing. I've gotten used to products being lovingly packaged with exquisite materials. This was a simple cardboard package, with little fanfare. A variety of eartips are included in a paper envelope, plain and simple. I do admit that I have a desk drawer filled with eartips packed in lovely little velvet or satin pouches, and they only add to the cost with zero acoustic value. I might be coming around to these JVC earbuds.

As I started to get to know the HA-A25T, I was getting swayed by the features. They are compatible with Bluetooth 5.3 with support for AAC (Advanced Audio Coding). Each earbud has a variety of features accessed by touch control on the outside surface. Most notably, a one-second tap on the right earbud turns on and off the active noise-canceling feature - ANC in an earbud selling for well under $100. In addition to three sizes of silicone eartips, two sizes of Memory Foam tips are included. Finding the perfect fit not only affects sound quality, notably bass response, but also vastly changes how much ambient noise is allowed in. With an IPX4 rating, they can take a sweaty or rainy workout without an issue.

What other features are packed in these Marshmallows? Four taps on the right earbud turns on low-latency mode that reduces the delay-time for gamers. A one-second tap on the left earbud cycles through three EQ settings: Normal, Bass, and Clear.

Long battery life is another feature that impressed me, with a total of up to 28 hours. The earbuds themselves will play for up to seven and a half hours on a charge, or six hours with noise canceling activated. The charging case bumps that up to 28 hours. The case fully charges in two hours, while the earbuds reach a full charge in two and a half hours. There is an "instant charge" mode that gives the earbuds 60 minutes of playback from a ten-minute charge.

SETTING UP

The HA-A25T earbuds automatically pair with your device when first removed from the charging case. There's an option to use just one earbud, both for music and phone calls. I found it a bit challenging to insert them into my ears without accidentally activating the touch-pad, so I recommend cycling through the settings before each use. I kept ending up in the "Ambient Sound" mode that drastically reduces the music volume to allow outside noise in. I appreciated how the volume slowly ramps up when you turn off that mode.

Adding to my growing list of things I like about these earbuds is the noise-canceling algorithm. I have a major pet peeve with systems that alter the sound quality of playback when switching noise cancellation on and off. With either setting, the HA-A25T maintains the same playback characteristics. Many of the commands are confirmed with voice guidance. I would prefer a way to disable that voice, but it does help you know which EQ mode is activated and if ANC is off or on.

PERFORMANCE

I initially started my listening with the Memory Foam eartips. However, they didn't offer a tight enough fit for my ears, resulting in a lackluster bass response. Switching to the proper size silicone eartips made a drastic difference to my listening experience. The fit was comfortable, and the passive noise isolation was phenomenal. So much so that I couldn't detect much difference between ANC on and off, but there was a slight reduction. It works much better on steady lower-frequency noise and less effective with high-pitched annoyances.

How have I waited so long to dive into Earthling, the 2022 release from Eddie Veddar? I'm not sure whether the song "Invincible" is more influenced by Peter Gabriel or David Byrne, but either way, I absolutely love this track. With an oh-so tasteful drum track provided by Chad Smith, this song has a slow burn with the intensity and tension rising throughout. I definitely prefer the "Normal" EQ mode while listening to music. Smith's kick drum in the intro is tight and solid; however, with the Bass enhancement on, it becomes muddy and indistinct. "Clear" mode brought out a bit of harshness, especially when turning up the volume, and this song just makes me want to crank it up loud.

In the build-up to the bridge, Veddar's vocals start to get swallowed by the band, but there's just enough clarity to the treble to keep his voice distinct. However, the high-end treble doesn't have quite the extension that I would like. Overall, the HA-A25T produces a warm, dark sound that is ideal on many tracks, though some users might prefer the 'Clear' EQ settings.

The phased guitar in the bridge has a wide open soundstage, and the acoustic guitars come in with even wider panning. I think I've found my new reference track. Smith's rolling tom-tom fills bolster the upper bass, but I could use a tighter and more distinct impact on the deeper bass notes.

To see if the treble was an issue on female vocals, I turned to my headphone test playlist on Tidal, which brought up Brandi Carlyle's "You and Me on the Rock (featuring Lucius). Her voice has a pleasant warmth to it, and the guitars lean more towards a dark, warm tone rather than the brighter quality I expected. The imaging was just lovely with the lead and rhythm guitars placed just left and right of center. I tend to prefer a warmer sound quality, but even I felt there could be more transparency and air in the treble response.

I used the HA-A25T not only to listen to some news and talk shows on YouTube but also for a few Zoom meetings. Here's where they really shine. Turn on "Clear" with noise-canceling on, and I didn't miss a single word, even on a Zoom with a soft-spoken colleague in a reverberant room.

Specs

SPEAKER: 1 x Neodymium
FREQUENCY RESPONSE: 20Hz - 20kHz
WEIGHT: .18oz
CHARGING CASE WEIGHT: 1.28 oz.
CHARGING CASE DIMENSIONS: 2.41 x 1.42 x 1.46 inches (W x H x D)

At a Glance

- \+ Budget price
- \+ ANC and Ambient modes
- \+ Memory Foam tips
- − Treble response lacks clarity
- − No-frills packaging
- − ANC could be stronger

Price: $69.95

www.JVC.com

CONCLUSION

The JVC HA-A25T have so many features and a pleasant sound quality that I completely forgot they were a budget earbud. The "Normal" sound setting lacked the treble detailing and clarity that I would have liked, but given the well-under-$100 price tag, I am impressed. With ANC, easy phone and music touch controls, quick charging and long battery life, I can overlook some of the cost-cutting.

Do you have to pay a lot to get good sound quality and decent noise cancellation? Nope. The JVC HA-A25T earbuds easily overcame my snobbish biases. Let's put it this way: I finished my critical listening for this review a week ago, and here I am, still using them daily. That says everything.

The Verdict

The JVC HA-A25T ranks among the top budget True Wireless earbuds I've tried, performing well as practical earbuds for the gym or office and won't cause heartbreak if you misplace one.

ELAC DS1200

ELAC DS1200

By Jim Wilson

RATING

PERFORMANCE ★★★★½

FEATURES ★★★★★

BUILD QUALITY ★★★★★

VALUE ★★★★½

WHEN YOU hear the name ELAC, do you immediately think of subwoofers? Speakers yes, but probably not subwoofers. Did you know they currently sell 9 different models? What I have in front of me is their top-of-the-line; the Varro Dual Reference Series 12" subwoofer, or DS1200 for short. That's a big name for a small sub, calling it "reference series" adds some expectations too. Can it can live up to those?

ELAC's dual-opposed driver design keeps things compact but delivers high fidelity.

IMPRESSIONS

The first thing you notice about the ELAC DS1200 is what you don't notice, size. There really isn't any, this thing is tiny. Measuring in at a mere 16.5"x19"x16.3" (HWD), it almost disappears in your room. Note that the 19" width is at its widest point, because the DS1200 is shaped like an isosceles trapezoid the front of the subwoofer is even slimmer at just 13.4". Don't let the size fool you though, the DS1200 weighs in at a stout 84 pounds. Pick it up and you feel the heft, it's substantial for sure. The grills even get in on the act, the $^{7}/_{8}$" thick MDF they're made from is about as rigid and inflexible as your boss. Held in place by metal pins and rubber cups in the cabinet, the gentle taper at the front and back blends beautifully with the shape of the cabinet.

Despite the minuscule dimensions there's a lot packed into this thing. There is not one, but two 12" drivers with their patent-pending HEX surround. That's roughly equivalent in cone area to a single 18" driver. Naturally there's an amplifier to motivate them, it's so large that the plate takes up about $^{2}/_{3}$rd's of the back panel. There are even internal cabinet braces somehow shoehorned inside. Did I mention there's also acoustic damping material in there? Did I neglect to bring up the fact that the cabinet walls are 1.5" thick? When you see this thing in person guaranteed you think "there's no way ELAC stuffed all that in there", but I can assure you they did. The proverbial knuckle rap test on the outside of the enclosure results in a dead sound, exactly what you want to hear. The cabinet is inert, even under heavy duress there is almost no vibration felt. Robust, weighty, stylish and almost invisible, ELAC did an awful lot with the DS1200.

The HEX surround is interesting, it has a dimpled appearance...

ELAC describes it thusly...

Hex Technology surround geometry allows for very linear relationship between applied force and resulting displacement in both directions. This ensures faithful reproduction of the recorded signal with low distortion even at high playback volumes. It also keeps surround width narrower in comparison to conventional circular roll surround having the same amount of excursion. Wide surrounds take away from a cone radiating area and contribute to

non-linearity since their effective radiating area changes between in and out strokes.

Small detail alert: because I review so many different subwoofers - a lot of which are visually indistinguishable - I'm wont to search for details, things that make product X stand out among the crowd. It can be something that you see, their engineering, a design element or just a little thoughtful touch a company includes that shows they were looking to differentiate their product from the masses. In the case of the DS1200 it's the plaque on the front of the cabinet.

Centered on the bottom of the front panel is an elegant metal plate with the company logo...

Nothing too uncommon there, but in the case of the DS1200 it wraps around the bottom and continues for another inch. Big deal, since you can't see that part who cares? Apparently ELAC. What they did was countersunk a whitish LED in the center of the bottom portion. So many times people complain about having an LED on the front of their subwoofer, mostly because it's bright, an unpleasant color like blue or because it's just downright distracting. By placing it on the underside of the cabinet what they did was give you an easy visual indication that the DS1200 is on, yet neither the color nor the direction of the light is the least bit annoying. Quite the contrary, in a dark room it acts as a little night light to let you know exactly where the subwoofer is so you don't stub your toe on it. It's low key, effective and unique. I like that. Mindful of the details, no matter how small they may seem.

ELAC sells through a network of authorized dealers, both brink-and-mortar as well as on-line. Among the latter are Amazon, Crutchfield and Electronics Expo, all big names in the field. Curiously, when I checked Electronics Expo they only show their speakers, none of the subwoofers are listed. Amazon and Crutchfield showed their full product line. You can also buy directly from ELAC of course, and if you choose that route they offer financing through Klarna. There are several different plans to choose from, including ones that are interest free, so you have options available. Another benefit of buying directly from ELAC is they provide a 30 day in-home trial with a money back guarantee.

The only color available for the DS1200 is gloss black. Typically I'm not a fan of that finish, because it tends to reflect light, but due to its size there is so little painted surface to contend with I didn't mind one bit. To be honest, I kind of like the way it looks all dressed up in its Sunday finest.

SETUP

There are several ways you can set up the ELAC DS1200, the quickest and easiest of them is to use their Sub Control apps AutoEQ system. You hold your phone close to the subwoofer with the mic aimed at either driver, play a test tone, then go to the main listening position (MLP) and run the same tone a second time. It will create and then load a custom tune into the subwoofer based upon your rooms unique acoustic characteristics. I tried it when I first got the DS1200 and the results were good, but I'm more of a hands-on person when it comes to adjustments so I went with option 2; manually hand tuning using measurement equipment.

Thankfully the Sub Control app has just about every conceivable setting, including perhaps the most beneficial of them all; 8 PEQ's (Parametric EQ's). These allow you to specify a frequency, a level (plus or minus) and a Q value (how "wide" the adjustment is, in effect how much it influences the frequencies both before and after the one you've chosen). Everything was returned to factory default, I wanted to eliminate the AutoEQ settings so I had a clean slate. Using Omnimic I was able to see the peaks and valleys at the MLP that needed attention. Using 6 of the 8 PEQ's I was able to get this at my seating position...

Given some of the room modes I have to deal with that's an impressive response curve. I then turned off the subwoofer and ran my AVR's room-EQ system to adjust the speakers. Why do it that way? Simple, I didn't want my hard work being undone by any external electronic algorithms. Once the speakers were also tuned I turned the sub back on and spent a little time with some movie test material, fine tuning the phase and output level to taste. I didn't need to touch it again during the 6 weeks the DS1200 was in rotation.

There's also a 3rd tuning option,

At a Glance

- \+ Rock solid build quality
- \+ Full featured, intuitive app
- \+ Tiny size and stylish appearance make it very decor friendly
- − Amp gets warm when pushed
- − Warranty is only 1 year
- − On the expensive side

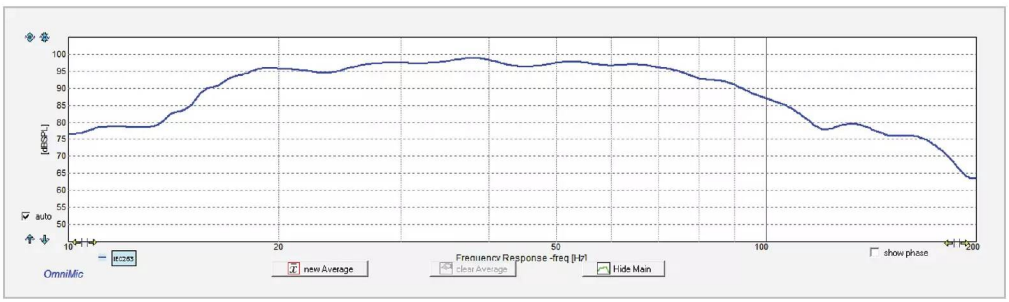
Price: $2,999 (includes shipping)

you can choose from one of ELAC's preconfigured settings; Movie, Music, Night and Flat. Each has been configured to provide a different response for a particular situation.

The app naturally comes in versions for Android and iOS devices. Thankfully it only needs Bluetooth to connect, not Location services as well. Being security conscience I only enable that when using GPS. I could never understand why other manufactures force Location to be enabled just to tune a subwoofer that's sitting right in front of me, seems totally unnecessary. ELAC doesn't include any information about how to use the app, which is an omission as far as I'm concerned. It's intuitive though so if you've ever made adjustments to a sub in the past it should all be pretty straightforward.

I did stumble upon one anomaly while using the app. A day after tuning the sub I noticed that 2 of my PEQ's had their frequency changed by 1Hz. I reset them, closed the app, reopened it and they stayed put. A few days later I went back in and the same two PEQ's had changed by 1Hz again. I reset them once more, closed the app, reopened it and they were as I left them. That issue didn't happen a third time.

When you do get around to the back of the subwoofer you'll see only a volume knob on the amp, meaning everything you need to tweak can only be accessed using the app. There's no dearth of inputs however, ELAC includes balanced (XLR), unbalanced (RCA) and high level connectors, along with a 12v trigger, Ethernet port and USB-A for firmware upgrades. There's also a button for wireless pairing. All Dual Reference subwoofers come with a builtin wireless receiver. By attaching ELAC's optional AirX2 transmitter to your AVR you can connect up to 3 of subwoofers, meaning no ugly wires or placement restrictions.



LISTENING/IN USE

My review methodology probably differs from most others in that I focus a lot of attention on how something fares in the day-to-day world, rather than just at the extremes. To me that more closely simulates real life usage because few of us are likely in the position to use our gear to its maximum with any regularity, at least if you want some semblance of hearing in your golden years that is. However, come testing time things change dramatically. There's an axiom that goes "drive it like you stole it", which is often used in reference to rental cars. I take a similar stance at this point in an evaluation, now I'm going to push hard. I'm looking for any weakness, a chink in the armor, in order to do that you have to pretend it's a rental car.

MOVIES

As I've been doing recently, I began testing with the brutal opening from the movie *Edge of Tomorrow*. I start off at a modest volume and see what happens, it all goes according to plan I increase it and try again. This cycle continues until the subwoofer stops getting louder, or I hear ugly mechanical noises. Turns out ELAC's protection mechanisms do their job, as I increased the volume the DS1200 got to a point where it simply didn't get any louder. As the frequency sweep went through the 5 different levels of that opening effect everything was under control, no matter how high I pushed it there wasn't an untoward sound to be heard. The more I cranked it the less output was observed from the 5th plateau, the deepest of them. Visibly you could even see the driver had its movement restricted once it reached a certain threshold. Personally I would prefer that to having a subwoofer try and do something it simply can't.

For *Underworld: Awakening* I general start with scene 9 where the half-breed Lycan/vampire child Eve sits cutting her own arm, fascinated by how she instantly heals.

Her vampire mother Selene walks in at this point, ready to gather her up and escape before the Lycans come and get her. It's too late however as they know Eve is there, and they intend on taking her with force. The Lycans blow apart the door to the lair and come rushing in. That explosion was potent, setting the stage for the ensuing mayhem. The vampires attempt to repel the onslaught with hand-held firearms, each 'pop' from their automatic weapons was reproduced brilliantly by the DS1200. That's merely an appetizer though, with this movie there's more work to be done.

A huge toll is taken on the vampire forces, but ultimately they prevail and slay the Lycans. Save for one, a gigantic mutant version that is 5 times the size and strength of the others. Selene walks into the rotunda to face off against it, but before she even catches a glimpse of its enormity you hear those thundering footsteps. While the DS1200 did a very good job of representing the size of this monster, it wasn't quite up to the task of hitting the lowest notes I've heard and felt in the past. The DS1200 distinguished itself with clarity and definition; this part of the soundtrack can get obnoxious with lesser subwoofers but there was no such issue here, it was able to render every note and element with precision.

Black Hawk Down, guess which scene I used from this movie? You're right, it contains the word "Irene". Honesty, I didn't really think I was going to stump anyone.

Once the famous word has been spoken there's a deep pulsating sensation, the very element this scene is noted for. There was certainly a sensation from the DS1200, but the deepest subterranean bass was a bit understated. The effect was there, and it was definitely evident, just not with a tremendous amount of intensity. Once the American forces have secured the prisoners their extraction begins, but while rounding them up a gun battle erupts between our soldiers and the rebel forces. All manner of hand held weapons are used, each of which was distinct. RPG's exploded with

authority, the 'whumping' sound from helicopter blades had a palpable sense to it. As was the case with *Underworld: Awakening,* dynamics were exceptional, the strength of each weapon and effect was clearly identifiable. That's perhaps what I enjoyed the most, the amount of detail I heard.

In the movie *Cloverfield*, a creature from another planet invades Manhattan. The attendees of a going-away party head to the roof of their apartment building to get a better view of what's happening, when they get there a huge explosion occurs. The DS1200 obliged with a convincing blast, a harbinger of what was to come. In fear they all scramble down the stairs to the street where they're confronted by a building collapse, courtesy of the alien itself. This part of the soundtrack builds as the debris and shock wave make its way toward the people on the street, something the DS1200 ate up. As the magnitude of the effect climbs, so too did what I heard and felt. All of it was in balance, including the guttural sounds from the alien.

A little further on they come face-to-face with one of the towering beasts out on the street. They're caught between it and the military, who subsequently open fire on the invader. They unload with bazookas and tank mounted canons, each hitting with a percussive kick. The thing howls in anguish, his roar reverberated throughout my room. Of all the scenes I used from *Cloverfield* I enjoyed this one the most. It has multiple layers, if they're rendered correctly you feel as though you were there. The DS1200 did that.

Always after a spirited movie test session I reach around the back of a subwoofer and feel the heat sink on the amplifier to see how much warmth it's generating. On the DS1200 it was noticeable, the large heat fin was plenty warm to the touch. I didn't hear any detrimental affects or notice a performance degradation, nor did it ever trip a thermal protection mechanism, so it was still operating within the designed parameters. When planning the location of the DS1200 in your room it's probably wise to ensure there are no obstructions to the airflow above or to the back of the cabinet.

MUSIC

I generally prefer to mix things up when choosing material for music, having a distinct variety for what I feature, but for whatever reason the day I decided to do this portion of the review I was a little worked up so I went mostly with vigorous music. That's not necessarily a bad thing, because a lot of it can be an acid test for a subwoofer, but it's just out of character.

Like a lot of aggressive songs, Stone Sour's "Absolute Zero" has a driving rhythm. It doesn't have the force of something from the 'speed' metal category, but it's not lacking when it comes to testing a subwoofer. Johny Chow's bass

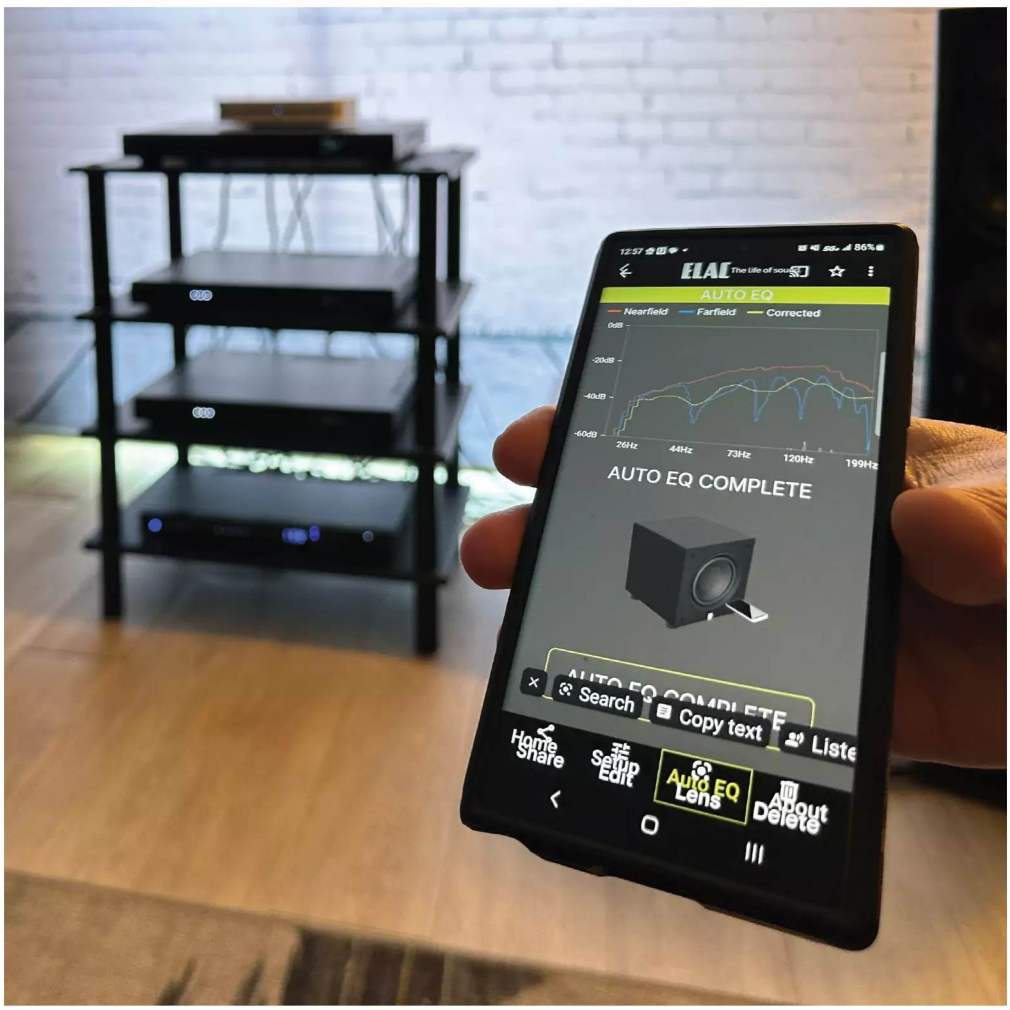
was rich and nuanced, but what was particularly impressive is how much power Roy Mayorga's drum had. Every time he planted his foot on that kick pedal I heard a commanding thud, pretty much what I needed that night. If you want to give your sub some work, or just happen to be in a mood, give this one a listen to.

Whereas "Absolute Zero" is rather lively, "Bullet with Butterfly Wings" from Smashing Pumpkins is more of a rolling rhythm. It's still pretty robust, just a little less spirited. This song is recorded on the heavy side, with Jimmy Chamberlin's drums and D'arcy Wretzky's bass sounding fairly thick. That's not the fault of the DS1200 mind you, it's how the track was laid down. That's exactly why I chose it, I am testing a subwoofer after all. ELAC rewarded me with a rousing interpretation of this radio staple from the Pumpkins, replete with a substantial amount of bottom end. It came across as forceful, raucous and untamed.

Finishing off with perhaps the angriest song of the bunch, I went with Disturbed's "Inside the Fire". This tune was written by singer David Draiman, a release of his anguish from a time in his teenage years when his then girlfriend ended her life. Based upon the fury in this song he clearly has not gotten over it. To honor that I pushed the DS1200 harder on this one than any of the others. John Moyer (bass) and Mike Wengren (drums) get themselves a workout here, and so did my little ELAC friend. Despite the fast pace and heavy emphasis recorded into the rhythm section, the DS1200 wasn't the least bit fazed. It soldiered on with nary a concern, even during the most intense portions it never skipped a beat.

Specs

ENCLOSURE: Sealed, dual opposed drivers
DRIVER: 12" x2, aluminum/paper cone, HEX Surround
FREQUENCY RESPONSE: 17Hz - 150Hz (Anechoic)
AMPLIFIER POWER: 1200 watts RMS, 2400 watts peak
AMPLIFIER TOPOLOGY: BASH
INPUTS: RCA Line Level, Balanced XLR, Speaker Level
LOW PASS CROSSOVER: 40Hz - 150Hz
CABINET FINISH: Gloss Black
DIMENSIONS: 16.5"x19"x16.3" (HWD)
WEIGHT: 84 pounds
APP COMPATIBILITY: Android and iOS



CONCLUSION

The laws of physics are immutable, there is perhaps no better example of that then as they relate to subwoofers. When it comes to deep bass played at volume you need several things, chief among them is a large enclosure. The ELAC DS1200 did soften the lowest octave when I pushed the pace, but frankly that's not the least bit surprising given the aforementioned pesky bit of physics. You can mitigate that to an extent with precision engineering, overbuilt drivers, powerful amplifiers and DSP tuning, all things ELAC includes with the DS1200. But no matter what, at some point you will hit a wall. When the DS1200 finally reigned things in it did so in a graceful and fluid manner, never once tripping over itself regardless of how hard I tried to get it to do that very thing. I pushed this subwoofer and it did not care in the least, remaining unperturbed throughout. Add to its composure a stylish and unique appearance, along with a well thought-out app that allows for minute configuration and customization, and you get quite a lot with the ELAC DS1200.

The Verdict

A little powerhouse of a subwoofer, despite its diminutive stature the ELAC DS1200 comes ready to play. The compact size does take away a little from the lowest octave, but its fidelity and unflappable nature easily make up for that.

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ELITE SCREENS

RSL SPEEDWOOFER 12S

RSL Goes Deeper

By Jim Wilson

RATING

PERFORMANCE ★★★★★

FEATURES ★★★★½

BUILD QUALITY ★★★★★

VALUE ★★★★½

The Speedwoofer 12S offers a lot of bang for the buck but it is not exactly small.

RSL SPEAKERS, by now most of you have heard of this company. But a decade ago? Not so much. I suspect the reason - or to be more precise, reasons - you've heard of them now are manifold. Among those are their attention to detail, impeccable build quality, incredible performance and outstanding value. But perhaps the biggest reason is RSL's unparalleled customer service; they epitomize the concept of going over and above. When your company and its products check all the boxes people will find you and in RSL's case they have. In droves.

RSL is the second coming of Rogersound Labs, a popular audio company in Southern California during the 1970s and 1980s. Started by Howard Rodgers, they went on to have a chain of hi-fi stores and a devout following of enthusiastic owners. Howard sold RSL in 1989, sadly it lasted only a few more years under the new ownership and by 1992 they closed their doors. About 11 years ago he revived the company with his son Joe, christening the new endeavor RSL Speakers. Instantly a star was born, and since their resurrection they haven't looked back. I was fortunate to publish the first review on the newly formed RSL Speakers back in 2012. After hearing what that system could do - especially considering the low price - I was hooked, instantly becoming a fan. Apparently I'm not alone, no matter what forum or website you frequent you'd be hard pressed to find anyone saying a single negative thing about RSL. In this day and age that's exceedingly rare.

INTRODUCTION

What RSL sent me this time was the hot-off-the-presses SpeedWoofer 12S, their first foray into building a subwoofer with a driver larger than 10". As you probably already surmised by the name, this one measures 12 inches. I've done 2 previous reviews on RSL products, both of which were 5.1 systems, but this time it's just the SpeedWoofer 12S. Sort of, more on that later.

What most don't know is the 12S actually started life as the 12X. Designed to be an evolutionary step from the SpeedWoofer 10S, it wasn't the same subwoofer as the 12S ultimately became. When COVID shut down the world RSL had a rethink and decided to push the envelope even further. Although similar in size, the new direction proved to be a more substantial upgrade than RSL first envisioned. While the driver and amplifier are related to those in the 12X, everything was massaged and optimized to go further and do more. With a larger cabinet and more advanced components all around RSL renamed their new and improved subwoofer the 12S.

The driver features a fairly unique cone consisting of a Kevlar reinforced paper coupled with an anodized aluminum dust cap. I put that in quotes because when you look at the driver you only see aluminum, there is no Kevlar to be found. A traditional dust cap is a separate half-circle portion of the cone that often protrudes outward, generally covering the end of the voice coil. Not so here as the dust cap takes on the appearance of the cone itself and attaches directly to the NBR rubber surround. It's almost like having a dual cone, each with its own properties that complement the other. Discounting for a moment the materials individual contributions to the sound quality, aluminum also adds rigidity and acts as a heat sink, aiding in thermal cooling. Since heat is the enemy of every driver, this added benefit helps the SpeedWoofer 12S maintain control even when being pushed hard.

Controls are fairly typical; there are dials for volume, phase, low pass and high pass. That last one is somewhat unique for a subwoofer, if you're setting up a 2 channel system it can come in quite handy to ensure your speakers and subwoofer are integrated properly. There's a toggle switch for auto power mode, with options being on or off. For inputs RSL includes speaker and line level (RCA), but not balanced (XLR). You'll also find a USB-A port to connect RSL's wireless adapter. There's a push button for switching DSP modes, of which there are 4 to choose from:

Reference - The flattest frequency response curve, with the deepest extension and the least amount of signal shaping. I chose this one for the duration of my review because it has very little equalization, and can be considered the "purest" of the DSP modes.

Movie - Has emphasis added from about 22Hz up to 50Hz, with a pronounced amount from the mid-20s to the low-30s.

Music - Additional output starting at 30Hz and going to 60Hz. The amount is fairly mild, but you can hear it.

Boundary - Slight boost added from approximately 35Hz to around 70Hz, below 35Hz it rolls off sharply. This setting is primarily for those living in attached housing, such as an apartment or condominium, and is intended to mitigate the possibility of disturbing neighbors.

Next to the DSP button there's an LED that will show a different color depending upon which mode you've selected, that makes it very easy to determine how it's configured with just a quick peek.

Keeping with tradition, RSL includes a remote control. At first glance it looks to be a little light on actual controls, having but volume up and down, a power button and a 4-position DSP adjuster with a mute button in the center of it. Funny thing is, that's all you really need. The only reason to go around back and make a change on the amplifier itself is if you want to alter the phase, low pass or high pass, something rarely needed. Everything else is on that handy little remote.

The SpeedWoofer 12S comes with unpacking instructions, the typical safety warnings and a quick start guide. The latter is just enough to get off the ground but to really get the most from the 12S you should download the PDF owner's manual. It's a comprehensive 19 pages of everything you could possibly want to know about your new toy. Well, 18 pages anyway; there is no page 19. Allow me to explain...

In the table of contents it says page 19 is '*imaginary*'. Seriously, that's what it says. It's not the last of the humorous anecdotes either, the footer on the table of contents page says '*Note: Any mistakes in this manual were intentionally placed to test your alertness*'. Know what you'll find on the very first page? A bold statement saying '*intoxicating bass awaits you*'. That humorous approach to documentation is an RSL hallmark, I'm glad to see that over a decade after the company's inception they're still as irreverent as ever.

Of course, no discussion of an RSL product is complete without mention of their exclusive Compression Guide Technology (CGT). When you look at the speakers and subwoofers offered by this company you see ported cabinets, not uncommon in the audio world, but that's only part of the story. For CGT to work it requires the enclosure be divided into areas of high and low pressure, as the sound wave from the back of the driver passes through these areas of varying pressure the deleterious affects of resonance are diminished to the point of essentially being inaudible. Resonance creates sound impurities so all audio engineers strive to eliminate them, RSL Speakers solution to the problem is the Compression Guide Technology. To aid the flow of air through the Compression Guide RSL smoothed all the edges and corners, minimizing turbulence even further.

At a Glance

- \+ Poised, even when pushed hard
- \+ Response rated into the teens
- \+ All this output from a single 12-inch driver?
- − No XLR (balanced) input
- − Large relative to other RSL subwoofers
- − Similar in price to the competition now

Price: $799 (includes shipping)

LISTENING/IN USE

Before I go any further, let me expand on something I mentioned previously: how RSL sent me a SpeedWoofer 12S, yet my evaluation consisted of a full 5.1 system from them. In July of 2019 I posted a review on a configura-

tion composed of 4 CG5's, a CG25 and a SpeedWoofer 10S. After the article was published I arranged to return everything, that's when Howard and Joe Rodgers started telling me about their new subwoofer with a 12-inch driver. Yes, the original conversation was 4 years ago. I was perhaps one of the most vocal when it came to their subs; I loved everything about them but I wanted bigger (hey, I'm a basshead too you know). They asked if I would send the 10S back but suggested I hold onto the speakers, the intent being they would send me the first 12S released into the wild. I could then review another 5.1 system using their new 12-inch subwoofer as its foundation. How long do you think it took me to say 'yes' to that offer?

Over the years I've come to know that Howard and Joe are perfectionists, refusing to release anything until it's been vetted three ways to Sunday. So I already anticipated there would be an elongated gestation period for this new subwoofer. What I didn't anticipate was that pesky little global pandemic, and obviously neither did RSL. When it hit they did the same thing we all did, went into lockdown. Development on the 12S came to a grinding halt. At that time I asked again if they wanted me to return their speakers, and once more they replied 'keep them until we have our new subwoofer to send you'. I boxed them all up and put everything aside, waiting for the day when things would return to normal. Over the past 4 years I have kept in contact with the Rodgers so I knew what was going on with their subwoofer journey. Finally, after what seemed like eons, a SpeedWoofer 12S landed on my doorstep. Time to get those CG5 speakers out of cold storage and make myself a nice RSL 5.1 system. This review will not have any references to the speakers though, it will focus solely on the 12S. That's the new kid on the block, everyone already knows how good the RSL speakers are so I decided to shine the spotlight on the subwoofer instead.

Why the rambling missive about a full system if I will only be commenting on the sub? It's quite simple; what I am doing is replicating what most RSL customers will, building their entire system solely around this company's products. Sitting in front of me are RSL's best speakers and their best subwoofer, the pinnacle of what these folks offer. Based upon past history I know this setup won't be all that different to what a lot of their customers will build, to get the true essence of the 12S I wanted to experience the same thing they would. If nothing else, it gives me an excuse to use the CG's again. I love these speakers; you won't have to twist my arm to hook them up.

MOVIES

The films I used in my first RSL review are a who's who of heavy hitters, but I couldn't reuse them all. Back then I would include scenes from 6+ movies, by the time I did my second RSL evaluation it was 3 so I decided to go that route instead. I threw in a fourth however, just because. Check that, in the end the total turned out to be 5. Why? I felt like it. Maybe I should have just used 6 and been done with it.

Edge of Tomorrow: you know the movie, you know the scene, I don't need to make any more of an introduction than that. But I do need to explain something. While exchanging emails with Joe Rodgers about another topic I casually asked how he felt about me stomping on his subwoofer with a brisk session of this movies intro. Given that the 12S is ported - and its driver will essentially run unchecked, in 'free air', when it attempts to reproduce the lowest notes - I suspected some trepidation. His verbatim response was "*Regarding Edge of Tomorrow, go for it! The SpeedWoofer will be fine.*" Why thank you Joe, don't mind if I do.

The pulsing sensation that unnerves so many subwoofers is essentially a frequency sweep with 5 distinct plateaus, each of which gets lower and louder. My modus operandi is to start at a restrained volume level, see how the system fares and then rerun the sequence after increasing the volume. Lather, rinse, repeat until it either coughs up a hairball and makes really unpleasant sounds, or simply stops getting louder. Almost without fail, the subwoofer I'm evaluating cries out in pain and starts making ugly noises.

Turns out Joe's confidence was warranted, and my concern unfounded. The SpeedWoofer 12S did an incredible job, pumping out an extraordinary amount of bass while remaining composed. It ultimately did reach its limit, but when that finally happened the SpeedWoofer did so in a graceful manner. Choosing the second of the 2 possible responses - a controlled tap out - it simply stopped getting louder. Before reaching that point it was intense, the driver pulsating like a piston. There was some port chuffing on the third and fourth levels, but only at a very high volume. There was nothing ever on the first, second, and fifth levels levels (fifth being the deepest). I had to be right next to the 12S to hear any port noise though, with it firing rearward it wasn't evident from my chair.

The *Club Fever* scene from the movie *Collateral* has a driving soundtrack, which is a nice test for a subwoofer. About halfway through, the shooting begins, lots of it, from different caliber weapons. EDM underpins the commotion, pumping out the typical metronomic rhythm characteristic of this type of music. With all that was going on the SpeedWoofer 12S dutifully complied; even at the elevated volume I was using it was unfazed. As everyone opened fire the guns rang out with a solid wallop, each with a unique sound and distinct level of impact. It made knowing who was firing what easy, exactly what you want in a frenzied sequence such as this.

Similar to the *Club Fever* scene, *Assault on Home Tree* from the

movie *Avatar* has a lot of weapons. Only in this case they aren't handguns; these are large caliber. I decided to jump directly to this movie in order to gauge how the SpeedWoofer 12S handled the different intensity level of each type of weapon. Unlike *Club Fever* there's no focus on music in this scene, but there is about a 500 foot tall tree that comes crashing down so I reasoned that's a good trade-off.

The indigenous Na'vi people are under attack, the rumbling produced from the approaching assault aircraft heading their way was palpable. The incendiary devices the invading forces shoot at the base of Home Tree had a pronounced sensation, bursting into flames with a noticeable jolt. Missiles followed shortly thereafter, each exploding with a sharp and decisive thud. All this artillery was focused on the huge exposed roots that Home Tree is perched upon. Eventually it succumbs to the relentless attack and starts to buckle. Waves of bass were sent through my floor when the roots fractured and imploded. As Home Tree lists I could feel it crumbling under its own weight, there was an impressive sense of impact as it finally succumbs and crashes hard into terra firma.

The *Fellowship of the Ring*, part of the original *Lord of the Rings* trilogy, is the first of the three film series. I went straight to the *Bridge of Khazad Doom* scene because that's what I used in my first RSL review. In order to get the full effect your subwoofer needs to be able to play deep and loud, yet still have enough comportment to be subtle. Sounds like a tall order, doesn't it?

As the Fellowship is navigating an underground Dwarf lair they come upon a Balrog, a massive demonic beast. Its hellish groan resonated throughout my room, a portent of things to come. As our intrepid warriors try to escape the pursuing Balrog the ceiling of the Dwarf stronghold begins to crumble, raining huge boulders down upon them. They hit with a potent thud. Some carried sufficient force to destroy the cascading staircase the Fellowship was using to escape, resulting in a perceptible sense of destruction. At one point the wizard Gandalf turns to face the Balrog and it lets out a guttural roar, the intensity of that effect as produced by the SpeedWoofer comes at you hard.

Excluding the opening sequence from *Edge of Tomorrow*, the scenes I chose thus far are more about texture. Sure, they have very deep and challenging parts, but the soundtracks are produced quite well. Not *Tron: Legacy*, there are numerous scenes recorded so thick that you need a subwoofer capable of supreme nuance if you don't want to hear little more than obnoxious droning sounds. Let's see if the SpeedWoofer 12S is up to the task.

The fireworks that exploded at the beginning of the Light Cycle battle scene were... wait for it... explosive! Sorry, I couldn't help myself. Awful pun aside, each blast was exactly that; a blast. They hit with a clean, resounding bang. Next up is the Daft Punk soundtrack that supports the lightcycle battle itself. The musical score is beefy and can get quite unpleasant, ruining the action on the screen if your system can't handle it. Not an issue with the SpeedWoofer 12S, despite the overemphasized bottom end it never faltered. All I heard was bass; a lot of it, but with tremendous detail. That balance is what I found most compelling, the SpeedWoofer 12S was unperturbed when confronted with something less than ideal. Everything was smooth and clean, it remained equable the entire time.

MUSIC

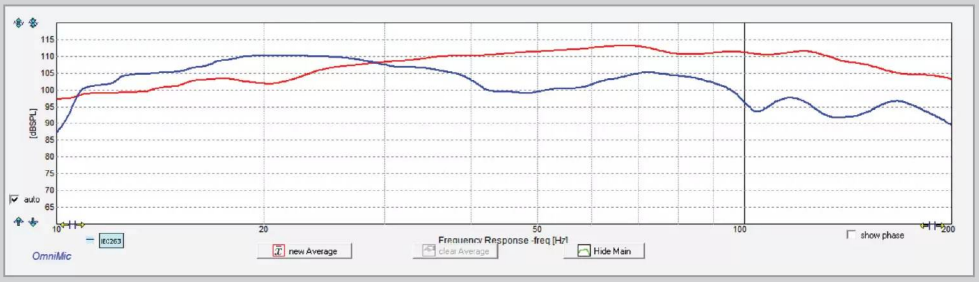
I'm going to lead with a classic, Pink Floyd's groundbreaking album "Dark Side of the Moon". If you see this show up in one of my reviews you know I'm having fun. You also know that I'm evaluating something special as I don't drag out Dark Side unless there's a reason. It showed up in my first RSL article more than a decade ago, the fact it made a return appearance should tell you something.

"Speak to Me" kicks off the album with what sounds like a heartbeat, by showing no restraint with the volume I was able to get my blinds to rattle every time it hit. At its peak I went over to watch the driver, each beat caused it to visibly palpitate. As "Speak to me" segues into "Breathe" the band comes alive, and so too did the 12S. Roger Waters' bass just poured out of the SpeedWoofer, commanding my attention. I then jumped to one of my all time favorite songs, which just so happens to be called "Time". When Waters plucks that first open E on his bass guitar the 12S sprang to life, blasting it out into my room. Between that and another heartbeat-like rhythm from Nick Mason's kick drum, I had a big smile on my face.

Test Bench

The measurements were taken using an Omnimic. The subwoofer was positioned in the center of my listening room with the microphone 1 foot from the front panel centered in the cone, and then 1 foot from the rear panel centered in the port. Red is the driver, blue is the port.

The controls were set as follows:
Volume: Max
Low Pass: 250Hz
High Pass: 250Hz
Phase: 0
DSP: Reference mode



Specs

FREQUENCY RESPONSE: 16 Hz-200 Hz ± 3dB (Reference Mode DSP setting)
ALIGNMENT: Rear-vented Compression Guide™
ENCLOSURE: 1" MDF front panel, .75" MDF top and side panels, textured matte finish
DIMENSIONS: 22 1/4" x 18 7/8" x 22 1/8" (HWD)
WEIGHT: 82 lbs.
WARRANTY: 2 years amplifier, 5 years everything else

WOOFER

12-inch Kevlar reinforced paper cone, anodized aluminum dust cap, die-cast aluminum frame, NBR surround, dual-mirrored Nomex spiders, high-excursion motor structure, dual-stacked ceramic magnets

AMPLIFIER

XDR Series, Class D
500 watts RMS, 1550 watts peak
Reference, Music, Movies and Boundary DSP modes
- **REFERENCE** Minimal EQ processing, "natural" response for ideal transient performance
- **MUSIC** Shelved response for extension, but with good upper bass impact
- **MOVIES** Enhanced output between 25-35Hz to augment low frequency content
- **BOUNDARY** "Neighbor friendly", reduced lower frequencies to limit rumbling through walls

30-250 Hz continuously variable low pass
0° to 180° continuously variable phase
RCA line level, Speaker level inputs
USB port for AR-4 2.4GHz wireless receiver

Despite being recorded all the way back in 1972, Edgar Winter's "Frankenstein" was the beneficiary of a really talented sound engineer. The dynamics, in particular, are evident; the higher notes are clearly distinct from the lower tones. That's why I chose it, to see if the SpeedWoofer could add punch and clarity. Short answer is yes, it most definitely can. As the horns and synthesizer blared away the sub responded with a rich bass guitar and firm thump from the kick drum, inviting you to crank it up. No matter how active the mids and highs were the SpeedWoofer 12S made sure you couldn't overlook the bottom end, the balance was very impressive. That turned out to be a lot of fun, think I'll play it again.

As was the case with movies, I wanted to conclude the music evaluation with something tricky. To do that I'll need a song with a complex bass guitar lick, wickedly fast drumming and a multitude of changes. So who can provide all of that? None other than John Myung and Mike Portnoy, aka the rhythm section of Dream Theater. These two form the sole of a very talented group of musicians, yet most people have never heard of them. I've seen Dream Theater live twice and it is nothing short of astonishing, provided you like very long and energetic songs of course. For DT, an 8 minute tune is merely a warm-up.

I grabbed my copy of "Black Clouds & Silver Linings" and queued up "The Shattered Fortress". This song has many twists and turns and at times gets aggressive, loud and downright rowdy. At almost 20 minutes long "The Shattered Fortress" is exactly what I wanted. In classic DT style there are multiple rhythms in a single song, the 12S transitioned from one to the other effortlessly. As Myung goes ballistic on his bass guitar, Portnoy followed suit on the drums. No matter how energetic the song got their respective instruments were clearly delineated, easy to identify amongst the chaos. Each had the correct amount of weight, complementing the other. A Dream Theater song needs a great subwoofer to sound its best, and the RSL SpeedWoofer 12S was up to the task.

CONCLUSION

Part of my job as a reviewer is to uncover flaws in a product, after all nothing is perfect. I'm usually pretty good about finding at least one major weakness, but RSL proves to be a challenge in that regard. Everything I've evaluated from this company has been impressive, and the SpeedWoofer 12S is no exception. If forced to say something critical it would be that it doesn't have the smallest enclosure - relative to SpeedWoofer 10S at least - and that there is no XLR input. Beyond that, I got nothing. Sorry, this subwoofer is just that good. RSL is one of the few companies from whom people will buy both their speakers and subwoofers, as a matched pair, rather than cherry pick individual products from several companies. There's a reason for that. Don't believe me? Try them for yourself, bet after hearing what RSL offers you'll understand what I mean.

The Verdict

The SpeedWoofer 12S is a fantastic addition to the RSL family of products, it's a subwoofer that does it all. Don't be surprised if you find yourself saying 'this thing only has a 12-inch driver?'. I certainly did.

TCL 85QM850G 4K MINI LED/LCD ULTRA HDTV

Huge Screen, Mini Price

By Thomas J. Norton

RATING

PERFORMANCE ★★★★½

FEATURES ★★★★½

ERGONOMICS ★★★★½

VALUE ★★★★★★

ONE SIGNIFICANT difference between building a home theater around a video projector or a conventional flat-screen television has been image size. Projector fans will point to the immersion that big-screen projection offers, with the screen size limited mainly by your available space, imagination, and budget. Until recently, however, TVs bigger than 65-inches were priced beyond the means of most consumers.

But TV manufacturers such as China's TCL are pushing hard to change that. Take the new TCL 85QM850G (hereafter referred to simply as the 85QM8). At 85-inches (diagonal) its list price is $2800. But it can be had for less. As I write this both Best Buy and Amazon are selling it on-line for $2200!

But a dash of reality is needed for those who might conclude that the projector and screen setup will soon be antique. A home projector and screen can still trump a TV in picture size. Nevertheless, 85-inches is a *big* TV, and if you want to further enhance the experience simply sit closer. At 8 feet, the width of your field of vision that an 85-inch diagonal set covers is about the same as a 110-inch (diagonal) screen viewed at 10 feet. Moreover, the 85QM8, as with many 4K TVs, can outperform most home projectors in three important respects: peak brightness, superior performance with HDR sources, and far less sensitivity to room lighting (though for me, even a TV will always look its best in a darkened room).

SETUP AND FEATURES

With its center stand you can position the 85QM8 on a table narrower than the set's width, though I suspect many buyers will choose a wall-mount (which won't quite be flush; the TCL's depth, without the stand, is 2.1 inches). While

An 85-inch screen adds impact to sports, movies, gaming, and shows.

TCL 85QM850G 4K MINI LED/LCD ULTRA HDTV

Test Bench

For the control settings used here, go to soundandvision.com. All the measured results were taken using CalMAN measurement software from Portrait Displays, together with X-Rite i1Pro3 Plus and Klein's K-10A color meters and a Fresco 6G pattern generator from Murideo.

SDR

FULL-ON, FULL-OFF CONTRAST RATIO: Unmeasurable

With the Local Contrast control set to High, thus fully engaging the TCL's local dimming, the black level measured 0.000 nits, leading to an unmeasurable full-on, full-off contrast ratio. But with the Local Contrast on High, the SDR gamma curve was somewhat compromised. Setting the Local Contrast control to Low instead of High produced an accurate SDR Gamma curve, but the blacks then measured 0.012 nits and the peak white 349 nits, for full-on, full-off contrast ratio of 29,083:1.

Delta E is a figure of merit that indicates how closely a display adheres to the color standard. Experts generally agree that at Delta E levels below 3.0-4.0 (most argue for 3.0) the result is visibly indistinguishable from perfect color tracking. Delta E values are also typically used to characterize the accuracy of either white balance (grayscale), or individual primary and secondary colors. After the subjective visual settings were made here, only two of the 85QM8's grayscale delta E values exceeded 3.5 and none exceeded 4.07. For color, none exceeded 3.14.

HDR10

FULL-ON, FULL-OFF CONTRAST RATIO: Unmeasurable

The contrast ratios for HDR followed the same path as for SDR; with the Local Contrast set to High the black level, and therefore the contrast ratio, became unmeasurable. Using the optimum visual control settings, the measured results were slightly worse than for SDR, but generally satisfactory, with the grayscale Delta Es all below 4.0 except at 50% (4.5) and 60% (5.1). All of the color Delta Es were below 4.5. These values, as in SDR, could likely be pushed below 3.0 with an extensive calibration, but it's unlikely that the result would be visually different.

A DCI P3 saturation sweep of the set's colors wasn't perfect, but I'd grade it a solid B or even B+. A color checker run (measuring dozens of real-world colors) averaged 4.6 (peak 6.3) with luminance included, and 1.99 (peak 5.13) without luminance.

With both the Brightness and Contrast controls set to 100%, the set's peak HDR luminance approached 1900 nits. But at that level the viewing, particularly in the darkened room I prefer for serious viewing, was unpleasantly bright. Leaving the Contrast at 100% but dialing back the Brightness to 50%, while still unpleasantly bright on the occasional overly vivid scene, made for far more comfortable viewing (peaking at 1400 nits in a 25% white window, 1200 nits at 2% and 550 nits on a 100% window).

Using the 1976 standard, the TCL 85QM8 covered 77.5% of BT2020 color and 97.8% of P3 color. And while of TCL's pricier competition might perform a little better in the video processing and up conversion sweepstakes, in many hours of viewing I never encountered any artifacts not clearly in the source material.

Specs

DIMENSIONS: (W x H x D, inches): 74.6 x 43 x 2.1 (without stand); 74.6 x 45.6 x 13.8 (with stand)
WEIGHT: (pounds): 105.6 (without stand); 116.6 (with stand)
VIDEO INPUTS: HDMI 4 (2 x HDMI 2.0, 2 x HDMI 2.1), eARC on HDMI 4, AV (L/R audio/composite video) with adapter, Cable/Antenna
AUDIO OUTPUTS: Optical digital (TosLink), headphone
OTHER: Ethernet, USB

the 85QM8 is manageable, it's relatively heavy. In either type of setup, the more help you can round up the better. If bought locally it might be wise to pay for dealer delivery and installation.

While the TCL 85QM8's images are produced by an LCD panel (as they are in all mini-LED displays), it uses mini-*LED backlighting* to generate sufficient image brightness. But don't confuse *mini*-LED with *micro-LED*. In the latter, each individual pixel is driven directly by its own micro-LED, with no LCDs involved. But micro-LED displays are, so far, available only at five- or even six-figure prices.

But even mini-LEDs are far smaller than conventional LEDs. Thousands of them can be squeezed into a mini-LED TV, offering superior black levels via precise, full-array local dimming. TCL states that its 8-series sets offer "up to" 2300 individually controlled, full-array local dimming zones. But TCL only specifies the number of zones by Series; the vague "up to" wording might apply only to TCL's 8-series flagship, a new 98-inch model at (Ulp!) $10,000. But whatever the 85QM8's actual zone count (so many that it defeated our attempt to count them with our usual zone-counting test), its full-array local dimming offers stunningly rich, deep blacks. The 8-series models also supplement their mini-LED backlighting with quantum dots to further enhance their color performance.

The 85QM8 is compatible with most HDR sources, including HDR10, Dolby Vision, HLG, and HDR10+. There's also a selectable Dolby Vision IQ picture mode for Dolby Vision sources that adjusts the picture automatically for your room's lighting conditions. I typically avoid such auto-brightness features, and this one also automatically engages motion compensation that can't be turned off, resulting in the full, soap-opera, film-as-video look. For Dolby Vision sources I instead selected the Dolby Vision Bright picture mode, which applies no motion compensation.

The TCL 85QM8 uses Google TV's smart platform. Going through the setup procedure was painless, though it does push you to sign up for a Google account. But you can set up Google TV without opting for an account, and given Google's past reputation for data-gathering, however innocent that might be, I elected a Google-account-free setup. Voice control via the remote control is also available, though I avoided that as well.

The Google TV platform was something of a mixed bag for me. On the plus side its main launch screen is relatively uncluttered. In addition to the usual links to popular sites such as Netflix, Amazon, YouTube, and others, plus the option to add more apps as needed, the 85QM8 includes

At a Glance

- ⊕ Screen size
- ⊕ Black levels
- ⊕ Price
- ⊖ Off-center viewing
- ⊖ Remote Control
- ⊖ Ergonomics

Price: $2800
317.295.4333
www.tclusa.com

TCL's own free "channels," offering older TV shows, mostly older movies, and other, often obscure program options. This feature proved to be a minor irritation when combined with the backlit remote control's narrow width and small, tightly packed buttons.

More than once I accidentally brushed up against the remote and was transported, unwittingly, to a "channel" where a billiards game or an old quiz show was playing! In addition, the remote button that calls up the set's adjustments is a fraction of an inch from its on/off button. The average user won't be often bothered by this, but for a reviewer or calibrator who might access the control menus hundreds of times...Oops!

There are four HDMI inputs, two of them HDMI 2.1. The 85QM8 also offers a full suite of functional, game-enhancing features including VRR (Variable Refresh Rate), ALLM (Auto Low Latency Mode), a 144 Hz refresh rate, MEMC (Motion Estimation, Motion Compensation), 480Hz for game motion smoothing, and what TCL calls Game Accelerator 240.

The arrangement of the 85QM8's picture adjustment controls frustrated me at first. After a few days of intensive use it became less irritating, if still a bit odd. The TCL's "Local Contrast" control is actually the local dimming selector. I tested for this by feeding the set a full black field from a test pattern generator. I then tried every setting of the set's various contrast controls and I confirmed that only the "High" setting of Local Contrast fully engaged the set's local dimming. This was capable of producing anything from impressively deep, full-screen blacks (*totally* invisible in a dark room) to localized black areas as commanded by the source.

The Gamma control offers a wider range of adjustments than we usually get, with steps from 1.8 to 2.6. Though 2.4 (or sometimes 2.2) is generally considered the desired gamma setting, I sometimes found the TCL's extra-generous gamma offerings helpful for zeroing in on an optimal balance of brightness and contrast.

The TCL's motion-taming features helped somewhat on sports, but there's only so much that can be done on any TV to treat source-generated motion blur. Motion issues tend to be fewer on movies, which are (usually) shot to minimize motion artifacts endemic to *24* frames per second image capture. I rarely use a TV's motion controls. But the TCL's separate Blur and Judder controls, plus selectable dark frame insertion, offer reasonable effectiveness if you feel the need.

If you make a change to most of the TCL's picture controls you must then push enter while the settings menu is still open. If you don't, your change will be ignored. **The settings menus also time out after roughly 20 seconds, which I often found intensely frustrating while adjusting or trying to write down my menu settings.**

The TCL's audio controls were also an ergonomic challenge. There are no direct-access audio controls in the main menus. Instead, to make a change to any of the audio adjustments you must first enter the audio menus by selecting "Dashboard" on the main screen, then push Enter on the remote, then select Display and Sound>Audio>Advanced Settings. This will open a wide range of audio controls, including several audio modes: I preferred Dynamic. But you can't actually listen to what your audio control changes are doing as you make them. You have to drop out of the audio menus, listen, re-enter the menus for every "make an adjustment" entry you dial in, then rinse and repeat as needed. And as I've noted before, you can't hear every benefit Dolby Atmos promises when all of the speakers are enclosed within the HDTV itself. Nevertheless, the set's audio, while no challenge to a full surround-sound audio system, was never less than listenable for casual everyday use.

In addition, the firmware version can be viewed or updated in a similarly complex manner: Settings>System>About>Software Update>Network Update>System Update. Direct access controls for audio adjustments and / or firmware updates would be less onerous.

There's one peculiar control in the TCL's Screen Settings *Auto Detect*. It is said to "Automatically [adjust] the visible screen according to the received signal." I had inadvertently left this vaguely described feature on for most of my testing and viewing. Panic ensued until I performed a direct A/B by repeatedly turning this feature on and off on a wide range of SDR and HDR program material. If there was a difference it was impossible to say for certain, at least in the picture modes I used -- Dolby Vision Bright for Dolby Vision, Movie for everything else.

VIEWING

I'd guess that few buyers of a $2400 (retail) television will be anxious to pay for pricey SDR and HDR calibrations (or at least not immediately). Therefore, all the comments in this report (unless noted otherwise), were made with settings that achieved *visually* optimum and satisfying results.

Those settings will be posted in the on-line version of this review at soundandvision.com. Minor variations of these settings might be useful for different samples of the TCL 85QM8, though encour-

aging reports on the industry in general suggest that the out of the box, and for the same model, the sample-to-sample variations of today's higher-end sets are smaller now than they've been in the past. I performed a limited white balance calibration on the TCL (SDR only). This slightly improved on the measurement numbers derived from the subjective settings but didn't in any significant way invalidate the visually derived results used below and elsewhere throughout this report.

You'll typically be viewing program material in one of three different formats: SDR (standard dynamic range), HDR10 (high dynamic range), or Dolby Vision (also high dynamic range). All of these will likely be sourced from the same disc player (or via streaming) and routed to the same input. Many of the TCL's controls can be set separately for SDR and HDR with no complications (you'll likely find it unnecessary to change most of them).

But the main Brightness control is more complicated. I always preferred a higher main Brightness setting for HDR10 sources than for SDR (there's no overall Brightness setting for Dolby Vision; it's fixed and inaccessible to the user). So I had to manually increase the Brightness control for HDR10 sources. But when I later returned to an SDR source, the higher HDR10 Brightness setting remained in place; it didn't automatically reset to my desired SDR value. I had to remember to manually lower it when returning to an SDR source; it Without this manual reset an SDR source was far too bright.

In my visually derived settings the TCL's performance was excellent on both SDR and HDR. With the Local Contrast set to High and appropriate source material, the TCL's full-array local dimming produced black levels as impressive as any I've yet seen on any other TV, either LED or OLED. In fact the black level couldn't be measured; my meters read 0.000 whenever the screen fell to full black. I later found, however, that the High setting of Local Contrast affected the SDR gamma curve; it was correct up to mid brightness but too "hot" at the gamma's top end. Turning Local Contrast to Low resulted in a proper SDR gamma curve, but increased the black levels in both SDR and HDR enough to be visible on a full-screen black image in a darkened room. The choice is yours, but it wouldn't be necessary if the SDR gamma, with Local Contrast control set to High, were correct out-of-the-box.

Most of my serious viewing was from Blu-ray disc. Three SDR movies I used included *A Knight's Tale*, *Victoria & Abdul*, and *Topsy Turvy*. *A Knight's Tale*, a light comedy-drama about jousting in 14th century Europe, offers only a few medium-dark scenes but they were handled perfectly. The images overall were consistently crisp and detailed, and the colors spot-on from the often-vivid costumes to the dusty browns in the jousting events.

Victoria & Abdul tells the story of the elderly Queen Victoria's friendship with her Indian servant / teacher. It's a superb SDR Blu-ray. Early in the film there's a strikingly colorful banquet sequence in Buckingham Palace, full of brilliant reds and precise skin tones. The film's few dark scenes were also believably rendered. Even if this film's 19th century story doesn't grab you, the entire film is a visual treat on the TCL.

Topsy Turvy is about the inspiration for, and the production of, Gilbert and Sullivan's most popular comic opera, *The Mikado*. It's awash in color and detail, from the excerpts of the on-stage performances to the period decor characteristic of the Victorian era. An early scene in the film shows Sullivan recuperating in bed from his many medical issues. As he chats with visitors, the wall behind him is awash in color and detail. And for those who might complain that the vivid stage lighting shown here is an anachronism in 1880's London, the theater in question (the Savoy) was the first theater in the world to employ electric lighting.

HDR discs were equally impressive. It was on *Harry Potter and the Deathly Hallows Part II* that the TCL's local dimming truly earned its black-level merit badge. In a scene where Harry and friends travel through a tunnel from Hogsmeade to Hogwarts, the camera first shows the group in closeup. Then the shot changes showing them centered and surrounded by utter blackness. It's not unusual for some otherwise good sets we've tested to show the surrounding blackness as a dark gray, but not here. On the brighter side, *Encanto* vividly showed off the TCL's capabilities with its rich color and vividly compelling HDR.

The TCL cleanly passed similar tests as well on Dolby Vision HDR, including *The Last Starfighter* (with impressive star fields), *Dragonslayer* (good results on scenes in the dragon's lair that offer some of the most difficult shadow detail I've yet seen from any source), and *Trolls World Tour*, the latter notable for its brilliant use of color and stunning HDR highlights.

The Verdict

The TCL 85QM8 has a few annoying ergonomic issues, and like most LED/LCD sets its off-center viewing won't challenge an OLED. But its performance is impressive, and its price unexpectedly affordable. Properly adjusted, and on source material ranging from the routine to the awesomely difficult, its performance was consistently irresistible.

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ELAC Varro subwoofers embody 95 years of creating audio excellence through tradition, craftsmanship, and innovation.

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RYTHMIK FV15HP2 SUBWOOFER

Go Big or Go Home

By David Vaughn

RATING

PERFORMANCE ★★★★★

FEATURES ★★★★½

BUILD QUALITY ★★★★★

VALUE ★★★★★

RYTHMIK AUDIO is a company that specializes in the design and manufacture of high-performance subwoofers. It was founded in 2001 by Brian Ding, who is an avid audiophile and music lover. His passion for music led him to experiment with different subwoofer designs and technologies, ultimately leading to his own patented Direct Servo-controlled subwoofer.

Servo technology uses a feedback loop to continuously monitor and adjust the subwoofer's output, resulting in extremely low distortion and greater accuracy in reproducing low-frequency sounds. While I had read about this technology for years, I never had a chance to audition it myself—until now. Rythmik's website is loaded with technical information on how the Direct Servo-controlled subwoofer technology works.

Rythmik Audio is an Internet Direct company, so you get a lot of bass for your buck. The company has a commendable business philosophy—keep their overhead as low as possible so they can offer exceptional value and couple that with intelligent design decisions to save costs. How? Well, don't put a 2,000-watt amplifier in a subwoofer when you can get the job done with 900 watts. Round that out with exceptional customer service—where you can send and receive emails directly with the founder of the company with any technical questions—and you have a winning formula.

BRING ON THE BEAST

We reached out directly to Brian Ding to inquire about a review sample. He treated us like a customer, asking probing questions about the type of listening environment we would be using. He asked if it was mainly for music or movies. Being a movie lover first, you know my answer and he suggested the FV15HP2 in order to get the most output at the lower frequencies.

Since I use a multi-subwoofer setup in my listening room, he kindly sent two subwoofers for the review. They arrived a few weeks later via freight truck. At over 130 pounds each shipped, I wouldn't want to subject these subs to the rigors of UPS or FedEx; they aren't too kind with heavy packages versus the safety of shipping them on their own pallet. Thankfully, they arrived in perfect condition.

Given their size and weight, I needed to get help from a neighbor to get them in the house and I couldn't wait to get them open. They come double-boxed with heavy-duty cardboard for maximum protection, and instructions for unpacking are found printed on the lid of the outer box. I loved how one side of the inner packaging is labeled "skateboard," which is used to slide the 115-pound subwoofer from its container.

Also in the box is a detachable power cord, four rubber feet that screw into the bottom of the sub (spikes are available at an additional cost), and a dual-sided piece of paper with an Installation Guide on one side and a Quick Guide on the other.

Once unpacked, I used furniture sliders to move the subs into place.

My first impression of the subwoofer is extremely positive. The piano gloss black finish is flawless and very classy but there is a $260 upcharge versus the standard black oak or matte finish. However, if you want the look of a luxury sports car in your theater, then spend the extra money—it looks marvelous! Furthermore, the cabinet is built like a tank and is well braced to minimize cabinet resonances or coloration.

SETTING UP IS HARD TO DO

Thank goodness that Rythmik provides a quick setup guide with the subwoofer, because the back panel looks like the controls in a vintage Boeing 737! This includes:

Inputs: Both XLR and RCA line-in connections, with designated LFE inputs (which I employed)

Limiter Switch: Recommended to

be kept ON for home theater use and OFF for audiophile music
Power Settings: Three options available (On, Auto, Off), as well as +12VDC Trigger
Defeatable Parametric Equalization (PEQ): With Gain, Bandwidth, and Frequency dials
Delay/Phase Control: For non-LFE use

LOW PASS FILTER SETTING

Rumble Filter: Dependent on whether you use one port or two

VOLUME LEVEL SETTING

Crossover Setting: Non-LFE only
Bass Extension Filters: Include two switches, Frequency (14, 20, 28) and Damping (Low, Mid, High)

Sadly, there's no Bluetooth app control, which would have made setup and testing a lot easier versus grabbing a flashlight and making manual adjustments.

The FV15HP2s sent to me use a HX1000XLR3 amp, which is rated at 900 watts RMS and is powered with a class-D Hypex UCD module versus the standard H600XLR3 600 watt Class H amplifier. While the power specs are slightly higher on the HX1000, it also has the advantage of better heat dissipation which allows for more flexible placement, either close to the wall or on its side. Regardless of which model you choose, they both power a 15" black anodized aluminum high excursion driver built to provide foundation-shaking bass response.

I tested each of the different Bass Extension modes with REW and ended up going with Rythmik's recommended settings for home theater use—One Port open and a 14 Hz low damping for a full-bodied home theater sound. See the attached measurements to see how each of these settings change the output of the sub.

Given their size and weight, integrating two of these subs into a room is not a task to be done in haste. And with my unfamiliarity with the company and its products, I wanted to set up the subs as if they were going to be a permanent fixture in my theater so I broke out my UMIK-2 and REW to carefully measure and evaluate the placement of the subs in my room. Rythmik recommends two installation modes—the first is in the front corners of the room, which unfortunately wasn't possible because I have a fireplace hearth that gets in the way in the front-right corner. With that option off the table, I opted for option #2—$^1/_4$ and $^3/_4$ placement along my front wall.

Using REW, I verified that this provided smooth response from both subs and I used REW's alignment tool and a MiniDSP to get their summed response in line (a 2.1ms delay on the right hand sub at my main listening position).

Given that I have a MiniDSP, I bypassed the onboard PEQ and created custom filters using REW to get the flattest response before running my room correction software in my Trinnov Altitude 16 processor. I've found that this is the best process to get a premium listening experience. With all the calibration and setup out of the way, it was time to see if the Direct Servo technology is as good as advertised.

IN USE

Rythmik touts all of their subs as being very musical, so with this in mind I started my official audition with some musical tracks. Up first is the subwoofer killer otherwise known as "Bass I Love You," by Bassotronics. The notes dig as low as 7 Hz, a frequency you can't hear unless you're a pigeon, but you can certainly feel them. In fact, at -10dB from reference, I think I dislodged a filling from the vibrations. I've heard this track countless times the past 10-plus years and this is the first time I've felt this type of visceral reaction. My wife was upstairs at the time and rushed downstairs thinking we were having a typical California earthquake. She was quite surprised when I greeted her with a smile and said, "This is a test, this is only a test!" Needless to say, she was less impressed than I was with the prowess of the dual FV15HP2s.

The notes above 20 Hz I could hear and the dual Rythmiks were as clean and detailed as I've ever heard. In fact, if I hadn't known better, I would have sworn I was listening to sealed subs because of the precision and quickness of the bass. Very musical indeed.

I've had the pleasure of using a Kaleidescape Strato system in my theater since August 2022 and I love how I can go through countless demo sequences without having to leave my couch. One of my favorite concerts for subwoofer testing is Imagine Dragons: Smoke + Mirror Live concert filmed in Toronto, Canada. Some may argue that the bass is a bit hot on the Dolby Atmos track, which I wouldn't disagree with, but is that really a bad thing? One of my favorite tracks is "Polaroid," which is filled with an upbeat and energetic sound, blending elements of rock, pop, and electronic music all held together by the beat of a kick drum. As expected, the dual Rythmiks didn't break a sweat and hit the 50 Hz notes with authority and utmost accuracy. The bass didn't hang in the air one bit and was extremely precise and detailed. If my reference subs had emotions, they'd be hanging their heads in shame because while I never had complaints about them before, they don't sound this good. It was like hearing the song from an entirely new perspective.

Jumping into movies on the Kaleidescape, I had to stick with the music theme and pulled up *Bohemian Rhapsody* with its Atmos track and queued up the Live Aid concert, which is arguably one of the most iconic and memorable live music performances in history that was faithfully recreated for the film. The performance begins with "Bohemian Rhapsody," which showcases Mercury's impressive vocal range and the band's ability to seamlessly transition between different musical sections. While Mercury's vocals are great, I couldn't wait for the drums to kick into high gear and when finally employed, they didn't disappoint. Precise, energetic, and powerful. While I wasn't at the actual concert, with the help of the Rythmik subs coupled with my M&K S150 speakers I was transported back in time and it felt like I was sitting in the first row of Wembley Stadium.

The Batman from Matt Reeves

At a Glance

- ⊕ Foundation-shaking bass
- ⊕ Outstanding Build Quality
- ⊕ Servo-control is the real-deal
- ⊖ Very Heavy
- ⊖ Large footprint can make room placement challenging

Price: $2,189

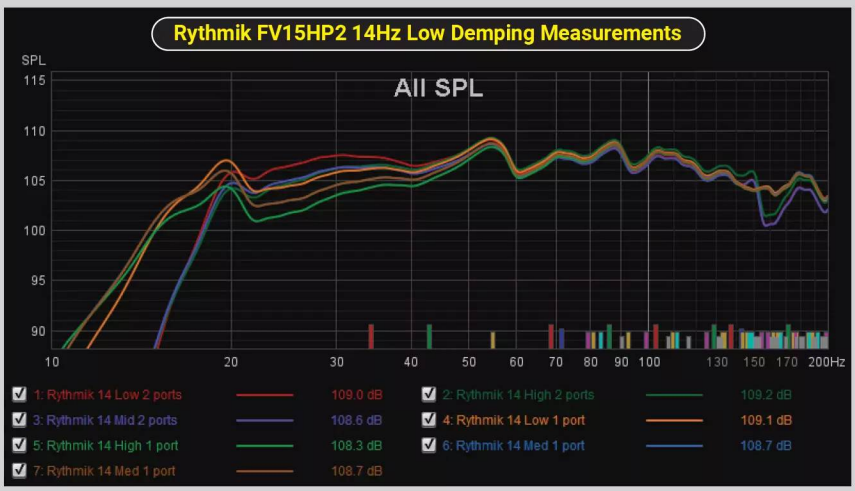
www.rythmikaudio.com

Test Bench

PEAK OUTPUT MEASUREMENTS

Peak output was measured using a UMIK-2 along with REW. The amp volume was turned to max, and all measurements were taken with the UMIK-2 facing down 90 degrees, at exactly 1 foot from the center of the woofer. The woofer was placed in the middle of my room to minimize the room effect on the measurements. The volume level from my preamplifier/processor (pre/pro) was increased in 10dB increments until distortion occurred while playing a 10-300Hz sine wave. From there, the volume was dropped in 1 dB increments until distortion was no longer present.

Peak output was 109.2dB at 54.6Hz, with 2 ports open and the Bass Extension filter set to High. As setup for the review (1 port, Bass Extension filter Low), it provides a Peak Output of 109.1 dB at 54.6Hz with a 3dB gain at 19.5Hz (107dB versus 104dB). This setting also provides a smoother roll-off below 20Hz.



Specs

ENCLOSURE TYPE: Ported
WOOFER (SIZE IN INCHES, TYPE): 15" Anodized Aluminum
RATED POWER (WATTS): 900 RMS class D patented servo controlled
CONNECTIONS: XLR Input
CROSSOVER BYPASS: Fixed & Variable
AVAILABLE FINISHES: Gloss Piano Black, Black Oak, Matte Black, Matte White
DIMENSIONS (H X W X D): 24.5" x 18.25" x 24.25"
WEIGHT (POUNDS): 115

is not a pick-me-up type film and couldn't be more different than the campy Batman TV show that introduced me to the character during my formative years. While the movie has received mixed reviews due to its length and tone, it does feature one of the best demo sequences of any film released over the past five years—the car chase involving The Penguin and our caped hero. Unlike Nolan's Batman who utilized military tech in his batmobile, Reeves goes the muscle car route whose engine digs well below 30 Hz when the pedal is to the metal. It was hard to wipe the grin off my face the first time I heard—and felt—the car with the Rythmiks in my system. My first instinct was to let out a series of grunts like Tim "The Toolman" Taylor because the FV15HP2s helped in emphasizing the *muscle* in the muscle car—roaringly deep and powerful.

Next, I jumped to the Iceberg Lounge nightclub, where the music comes at you from every direction and the chest-pounding bass dig deep. Even at reference levels, the Rythmiks keep to the beat and never even broke a sweat. My wife wasn't pleased with this demo because she could hear it from the back yard and complained I was going to break the seal on our newly installed double paned windows. I kept the demo running inside the house and went to take a gander outside, and sure enough, you could physically see them vibrating although I doubt the subs are powerful enough to break the seals (or at least that's my hope).

No matter what bass-intensive movie I threw at the Rythmiks, they never failed to bring a smile to my face. Whether it was the barroom scene in *Alita: Battle Angel* or the second wave attack in *13 Hours: The Secret Soldiers of Benghazi*, the precision and speed of the FV15HP2s continued to impress. In fact, something happened during one demo that I can honestly say was a first for me. My wife was out of the house and I decided to see how well the subs could handle the "soften them up" scene from *Hacksaw Ridge*.

While I was prepared to be impressed, I didn't expect the salvo to literally move the hair on my head! At first I thought it was a spider that dropped from above but when I replayed the scene, the same thing happened a second time—it was moving enough air in a 4500 cubic foot room to make the hair on my head flutter. While I never listen at this volume level outside of testing gear, it's nice to know that I can push the subs as hard as I want without any worry of them being overmatched.

CONCLUSION

For the past couple of years, there have been comments on the Sound & Vision website on virtually every subwoofer review as to when we were going to review a Rythmik sub. To those readers, your patience is being rewarded, and I owe all of you a big Thank You! Without your prodding, I'm not sure if this review would have ever happened.

While I've reviewed countless subs over the years, there are very few that have had this type of visceral impact on me. In fact, there's only one—the MK Sound X15+. What's so amazing about the FV15HP2, is that you can buy two of them for the price of one X15+ and have about $1500 left in your wallet. I've been in bass heaven since employing two of these subs, and now the real fun begins—convincing the person who must not be crossed that they need to be a permanent fixture in our theater. Wish me luck!

The Verdict

Rythmik's direct servo technology isn't a marketing slogan—it provides the most precise bass these ears have ever heard.

ONKYO TX-RZ70 AV RECEIVER

Power Packed

By Daniel Kumin

RATING

PERFORMANCE

FEATURES

ERGONOMICS

VALUE

IT'S BEEN a few years since I've had a big Onkyo AV receiver under the operating lights. And the brand's new flagship model, the TX-RZ70, certainly qualifies: nearly 8 inches tall and some 19 inches deep, and tipping the beam at almost 50 lb, the TX-RZ70 is no lightweight. As a line-topping design it incorporates all the lead features you'd expect: 11 channels of on-board power, Atmos, dts:X, and Auro 3D object-oriented surround decoding, 8K HDMI 2.1 all around, and THX Reference certification, plus Dirac Live full-range room-correction EQ included with Dirac's Bass Control.

That's a lot to pile into one box, but the TX-RZ70's exterior is surprisingly uncluttered, with just a single big knob, two small ones, a dozen-plus small pushbuttons, and a big, green dot-matrix display. The overall design language (and the display) is mostly unchanged from the last few years, but it's a clean look that I've liked, then and now, made possible in part by the large drop-down panel revealing a dozen or so additional buttons, a 4-way/enter rocker panel, and jacks for a convenience HDMI input and the Dirac setup mic.

Around back you'll find 6 HDMI inputs and three — count 'em — outputs including one dedicated to a Zone 2 system, and no fewer than 13 speaker-out multi-way pairs. Only eleven of these are powered at one time, but as with other 11-channel AVRs I've seen, you can conjure up multiple setups, ranging from an 11-channel main system (7.1 plus four height speakers), to a more modest main with one or more remote-room layouts. And lest I forget, the TX-RZ70 hosts a few legacy video inputs (1 component and 2 composite), for those with a Betamax or Disc-o-Vision units gathering dust in some forgotten closet.

After hefting the big Onkyo onto my equipment rack, I proceeded with setup.

One feature the Onkyo does not include is any sort of multi-modal preset routine.

Mechanically, this required only plugging in my multi-brand 5.1.4-channel speaker layout (all terminated by convenient banana plugs, fortunately), HDMI cables from cable-box and Blu-ray player sources, and a subwoofer cable. Next order of business: Dirac has been covered several times in recent *S&V* numbers, but, briefly, the process requires running the Dirac software, which is conveniently baked into Onkyo's proprietary Controller iOS/Android app, on an external device, in my case an iPad mini/5. (You can use stand-alone Dirac software on a PC or Mac or iOS/Android gizmo as well, but the convenience of the in-app setup is tough to beat.)

As I have experienced from several past Dirac runs, D.L. aced my speaker sizes/crossovers, distances/delays, and levels, with the sole exception of my sub, which nearly all room-correction systems tend to over-delay and over-gain. And, also as I've found in multiple past trials, it did an excellent job of fine-tuning in-room sound, correctly locating, and compensating my room's two main modes. Room modes, or resonances at low frequencies arithmetically related to the room dimensions, impose a salad of deleterious effects on reproduced sound.

By mitigating these, correctly implemented room correction can make a dramatic difference. And not just in the bass. Though leveling bass is the most obvious advantage, doing so reduces interactions at higher frequencies, resulting in clearer, more "focused" midrange, as well as the tighter, better pitch-defined, and often deeper bass you'd expect. Dirac Live Bass Control, which as mentioned is an extra-cost ($99) option, enables discrete ops of the TX-RZ70's twin subwoofer controls, allowing for different crossovers, delays, and levels, which, as I under-

stand things DLBC will integrate into an optimally calibrated ur-subwoofer.

Any flavor of properly engineered room correction will offer much of these benefits to a greater or lesser degree. Dirac Live is one of the best such available, and I expected, and experienced, very obvious improvements in these regards. That said, in the interest of the levelest possible playing field, I did the greatest part of my listening with Dirac disabled.

LISTENING

If you strip away all the "extra" features, any AV receiver is at bottom a multichannel amplifier with a surround processor/decoder and switching facilities on top. Confirming amplification competence is always my first order of business, and it didn't take long for the TX-RZ70 to assert that there was "nothing to see here," which I mean in the most positive sense. Beginning as always with stereo, full-range (no subwoofer) listening via my lower-than-average-sensitivity, almost-full-range stereo monitors, I heard all the dynamics, detail, and transparency I expect from any top-shelf design. (If you're looking for comments on "amplifier sound," you've come to the wrong shop. I've long maintained that competently designed modern amps, regardless of topologies and technical details, while operating within their linear range, dynamic capabilities, and into their intended loads, are fully transparent. Of course, these are three very big "ifs," which I believe account for the differences we in fact occasionally do hear in the real world.)

In any case, the big Onkyos' amps aced the stereo test with ease. A favorite classic recording, Janis Ian's 1993 *Breaking Silence* (which still sounds audiophile-ready even by current standards) offered up "This Train Still Runs," via the RZ70's Pure Audio mode—no processing, no crossover, no subwoofer. What a pleasure to hear drums that sound like real drums! With the Onkyo doing the business at reference-playback level, my stand-mount three-ways, which as mentioned are some few dB less sensitive than most similar designs, produced full dynamic thrills, with kick and snare drums solidly delineated, while protecting the record's sweet, airy treble and (of course) Ian's slight-but-solid mezzo-soprano vocal.

For a more muscular amplifier workout I turned to a guilty pleasure, the Kentucky Headhunters'—a bunch of crack studio cats masquerading as a really good bar band—*Electric Barnyard*. Again the Onkyo showed no shortfall of power or punch, even at fully rocking levels, on tracks like the Hunters' cover of the forgotten Norman Greenbaum one-hit classic "Spirit in the Sky." Complete with an homage to the original's knife-edge fuzz guitar updated with much more powerful bass and drums, this still sounded great at wall-pounding levels, the four-on-the-floor bass-and-kick retaining full girth and definition, which earns another definite check mark.

Thanks to Dolby Atmos' widespread acceptance in the recording and mastering worlds, surround music, which is surely an AVR's truest all-around test, is (finally) having a moment. Frustrated by Qobuz's foot-dragging on Atmos music and Tidal's limited classical catalog, I (finally) signed up for Apple Classical's free one-month trial. (Free, that is, if I remember to cancel next month.) Wandering through this Ali Baba's cave of choice eventually selected a lossless, Atmos remaster of Mahler's *Fourth* from the Concertgebouw Orchestra under that eminent Mahlerian Leonard Bernstein. I've been to a few concerts i.r.l. at the Concertgebouw — one of the world's finest-sounding halls — and found this to be a pretty convincing rendition. Hearing Mahler's iconic sleigh-bells in the opening bars with genuine spatial depth and height to their jangle, as opposed to the "flat-space" of stereo, highlighted how valuable I think well-judged surround-music production can be.

Though a 1988 recording, this spiffed-up remaster sounded glorious, and I happily sank into my listening seat for the full four movements of the Amsterdamers' famously syrupy strings, forgiving and Lenny's, umm, relaxed tempos (and, sometimes, exaggerated rubato) at a lifelike, mid-hall level. And not once did the Onkyo make itself known, which is all I ask of any amplifier or processor.

Then again, you could argue that the true core challenge to an AVR is film sound, but either way the TX-RZ70 proved up to the task., Among the numerous titles I sampled, a 4K/Atmos stream of the fairly forgettable (and comically but un-smilingly violent) action-er *Extraction*

Specs

POWER OUTPUT: 140 watts per channel (20 Hz-20 kHz, 0.08% THD, 2 ch. driven at 8Ω; (surround: 11 ch.x210w at 6Ω, at 1kHz, 1% THD, 1 ch. driven)
DIMENSIONS (WxHxD, Inches): 17.1 x 7.9 x 18.7 in.
WEIGHT (Pounds): 48.5 lb.
AUDIO INPUTS: 7x HDMI (1 front, 1 eARC), 2 coax, 2 optical digital, 1 USB (media only); 4 analog stereo line unbal.,1 MM phono.
AUDIO OUTPUTS: 13x speaker (11 active simultaneously: up to 4 assignable to zones); 11.2-channel unbal. preamp outputs (inc. assignable Height-2/Zone-3, 2 discrete subwoofer outputs), 2 stereo zone line out
VIDEO INPUTS: 7x HDMI (1 front), 1 component, 2 composite
VIDEO OUTPUTS: 3x HDMI (1 eARC, 1 zone)
WIRELESS: Bluetooth (RX/TX) 4.2 A2DP/AVRCP/aptXHD; WiFI Chromecast, Airplay2
ADDITIONAL: FM 75Ω "F" antenna; AM-antenna push-terminals; Ethernet (network, control, streaming); RS-232 (control), 1x 12v-trigger; remote in

proved entirely satisfying via my full 9.1.4 speaker array. *Extraction* may not have won the *Palme d'Or*, but it boasts a bang-up Atmos soundtrack and, occasionally, some unexpectedly classy cinematography — and Chris Hemsworth for any hunkaholics reading this. This cornucopia of gunshots, explosions, and whirling and occasionally crashing helicopters was an Atmos playground. The Onkyo never stumbled while delivering this sonic buffet even at very near reference levels, yet dialog and soft music effects were unfailingly clear and defined.

THE REST OF IT

I found the new biggest Onkyo an easy home-theater bedfellow, with simple, self-prompting menus and a clean, unfussy, yet fairly dense remote layout with full, albeit manual key illumination.

The TX-RZ70 is mostly free from extra features of questionable utility, but does include a pretty comprehensive Zone 2 and Zone 3 multiroom option, with the usual HDMI-video capability for Zone 2, and an audio-only Zone 3, with a "Whole House" mode that does just what you'd expect. There's also something called Cinema Dedicated Mode, which purports to "...improve sound quality by limiting the activity of digital circuits and thereby suppressing the noise that is generated by them" (a sub-option also kills network activity, for greater suppression).

I confess not only that I heard no impact whatsoever from these, but that I've never heard any result from similar "super-purity" settings on the slew of AVRs and integrated amps that have passed through my paws since Dubya was in office. Maybe my hearing is not acute enough — or maybe the difference of a dB or two well south of -90 dB to begin with just isn't audible in the real world. THX Loudness Plus, a volume-aware "smart" loudness compensation scheme, is on board in a full suite of THX listening modes for Movies, Music, and Games.

I don't know how this compares to Dolby's or Audyssey's equivalents, either of which I consider to be quite valuable, but it seemed similarly effective at making substantially below-reference-level playback rather more impactful. Bi-directional apt/X-HD Bluetooth is on board, so you can stream from a phone or whatever, or go walkabout with a pair of BT headphones.

One feature the Onkyo does not include, and that I frankly kind of missed, is any sort of multi-modal preset routine: something that can remember multiple combinations of source, surround-mode, channel-levels, EQ settings, and the like and store these for one-touch recall. In the real world, such functions can prove very handy indeed, because we seldom want precisely the same settings for, for example, Debussy and Die Hard. Another absence I encountered was the lack of an "info" on-screen display that shows current input source, signal-type, bit-rate, video mode, surround mode, and so on, on one or two screens. Several competitors feature displays of this sort, and I've found myself consulting them frequently.

The TX-RZ70 does not include a full-function on-board streamer *per se*, though basic screens allow for direct-access of Spotify, Tidal, Pandora, AmazonMusic, and Deezer, all of which can also be streamed via the Onkyo Connect app, as are Airplay and Chromecast — the same one used to run the Dirac Live cal routine. (For the record, while the Amazon Music direct-access screen worked as expected, the Tidal one reported "Error: requested quality is not in user's subscription," which is nonsense since my Tidal sub is top-tier. Software *oopsie*, no doubt.) Then again, all these and their competitors are equally castable from their respective native apps, with far greater functionality.

Anyway, everything from your electric toothbrush on up seems to include at least some streaming capabilities these days. I used both Tidal and Qobuz iOS apps via Chromecast with no issue, as well as Roon over this and AirPlay both. The TX-RZ70 is Roon Tested (usable via Airplay/Chromecast, at their max resolutions), but Roon Ready status is not yet on board; a firmware update is said to be on the way but had not arrived during my trials.

At the end of the day, though, my experience confirmed that in the TX-RZ70 Onkyo delivers what it promises: flagship-level audio and video quality, with 11-channel wattage that compares favorably with just about any other AVR available, and does so at a very competitive price.

At a Glance

- \+ Impressive amplifier power, dynamics, and quality
- \+ Simple, straightforward ergonomics
- \+ THX-Select certified
- − No global user-preset feature
- − Limited on-board streaming

Price: $2799

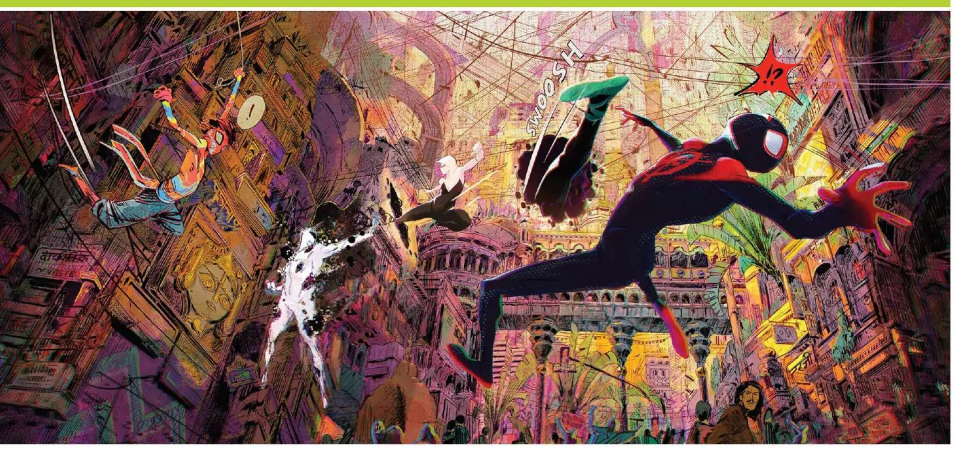
onkyousa.com

The Verdict

A powerful, fine-performing 11-channel amplifier anchors a flagship AVR that delivers the goods and is mostly free of excess baggage.

REFERENCE ★★★★★
EXCELLENT ★★★★½
GOOD ★★★★☆
FAIR ★★★½☆
POOR ★★½☆☆
RATINGS

SPIDER-MAN: ACROSS THE SPIDER-VERSE



Only a few moments into *Across the Spider-Verse*'s two-hour-and-20-minute runtime, we can begin to understand why this sequel to 2018's Oscar-winning *Into the Spider-Verse* took almost five years to arrive. Dramatically bold and visually (and sonically) fearless, the movie is exhausting in the best possible sense, inviting the audience along on a mind-boggling adventure and daring us to keep up.

Let's assume you've seen the first film—although we're given smartly encapsulated backstories when needed—and now Brooklyn's arachno-teen Miles Morales is growing into his superpowers, which prove useful against a deceptively dangerous new nemesis with the ability to open portals between universes. This threat attracts the attention of a vast Spider-Society staffed by web-slingers of every description, headed by the darkly formidable Miguel O'Hara. Rather than recruit Miles, they want to hold him back because an impending loss will prove essential and must be allowed to play out, lest cataclysms ensue. Ally Gwen Stacy has been promoted from supporting character to co-lead this time, facing demons of her own on the way to some shocking twists of fate. *Across* is what we get when some of the best talents in the business take their imaginations off the leash, giving us lightning-paced heroics densely packed with layers of detail I haven't even fully processed yet, and I've already seen it twice.

The next-level colors are perhaps the most striking aspect of the 2.39:1 image, keenly balanced to alternately dazzle and draw the eye precisely where the filmmakers want it to go. The upscaled 4K picture showcases a range of art styles as we jump from reality to reality, the tiny Ben-Day dots revealing themselves the closer we look. Out-of-focus midground and background elements remain vital to the Spider-Verse's distinctive visual bag of tricks. Dolby Vision HDR proffers a welcome boost both to the colors and the shading, with bright highlights evident in wisps of luminous energy and in the glowing skies above New York City. Worth noting, small text pop-ups can appear briefly at seemingly random points in the narrative, serving up educational and amusing spider-tidbits, so we might want to keep the remote control handy for the occasional freeze-frame.

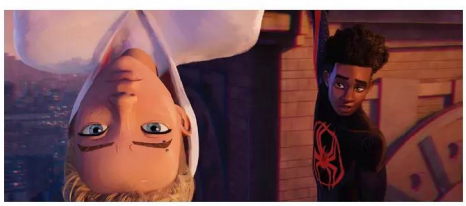
Not to be a home theater snob, but Dolby Atmos seems like an outright necessity for a movie of such magnitude, rendering a world where anything can happen anytime, coming at us from anywhere. Plenty of expansive, hectic moments of fights and crowds and people swinging over our heads comprise this 360-degree track, but there are some tiny, pay-attention-or-we'll-miss-out cues, too. The music is a harmonious blend of Daniel Pemberton's fiercely original score and thoughtfully chosen songs, rising and falling within the mix to impart a genuine soul to the story. Worth noting, the 4K disc defaults to the Atmos/7.1 track whereas the included HD Blu-ray maxes out at DTS-HD Master Audio 5.1.

The sole extra on the Ultra HD platter is a boisterous audio commentary from all three directors joined by writer-producers Phil Lord and Christopher Miller. Over on the Blu-ray we find a lengthy deleted scene presented in crude, unfinished form, alongside a pair of Metro Boomin music videos. The multiple featurettes—the longest of which runs under 15 minutes—can only scratch the surface of the countless Easter eggs and insider homages on display, even when taken in tandem with the filmmaker commentary. Like I said: Freeze-framing on subsequent viewings could prove quite rewarding. A unique printed code for a Movies Anywhere digital copy is also supplied, unlocking all of the bonus content as well, except the commentary.

A master class in 21st century animation, *Spider-Man: Across the Spider-Verse* is a thrilling trip through the multiverse with new and old friends, while also whetting our appetite for the upcoming final installment in the Miles Morales trilogy, *Beyond the Spider-Verse*. We'd better rest up. ● **CHRIS CHIARELLA**

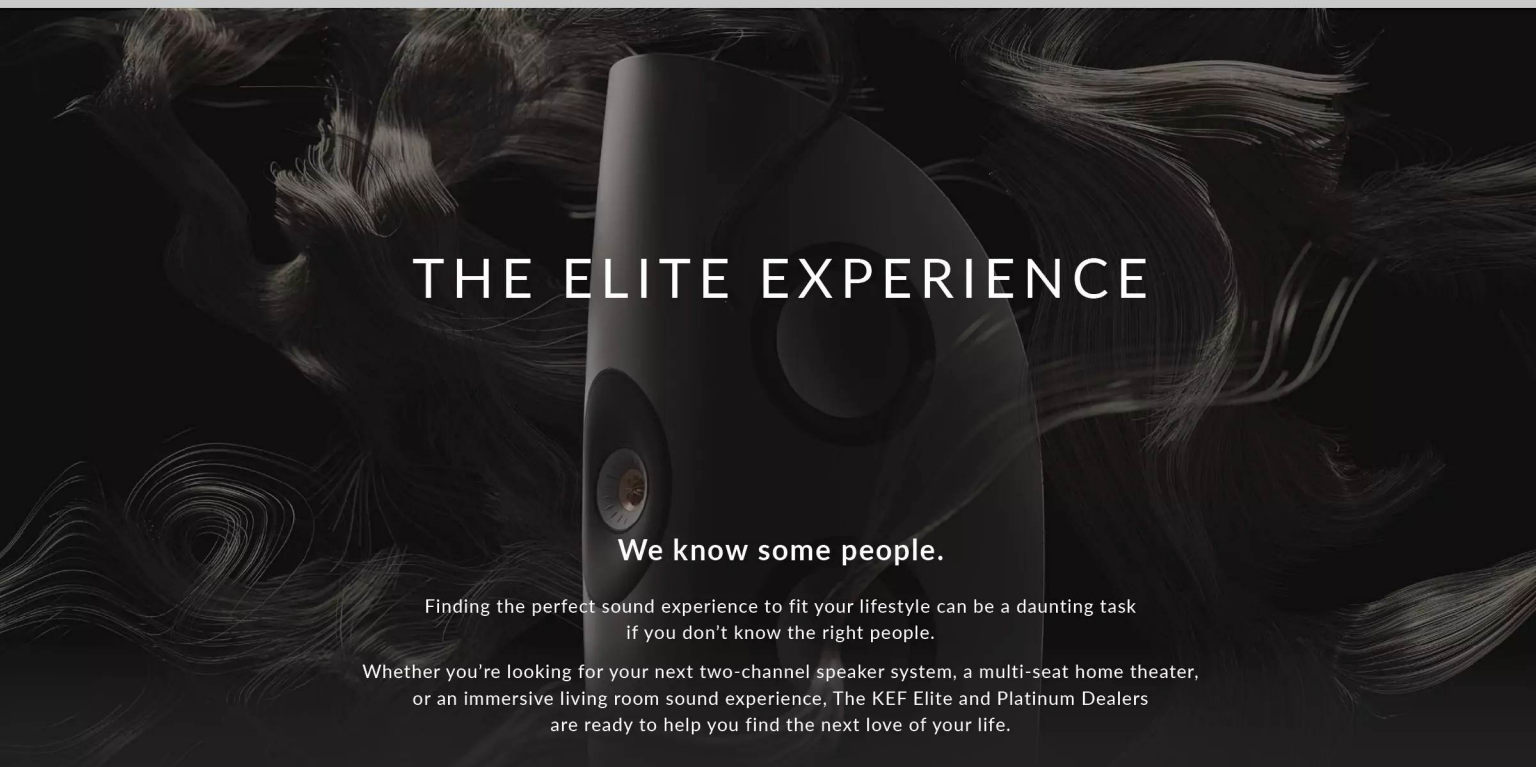
ULTRA HD 4K BLU-RAY
STUDIO: Sony, 2023
ASPECT RATIO: 2.39:1
HDR FORMAT: Dolby Vision, HDR10
AUDIO FORMAT: Dolby Atmos with TrueHD 7.1 core
LENGTH: 140 mins., PG
DIRECTOR: Joaquim Dos Santos, Kemp Powers, Justin K. Thompson
STARRING: Shameik Moore, Hailee Steinfeld, Oscar Isaac, Luna Lauren Velez, Brian Tyree Henry, Jason Schwartzman

PICTURE	★★★★★
SOUND	★★★★★
EXTRAS	★★★



Sony

KEF Listen and believe



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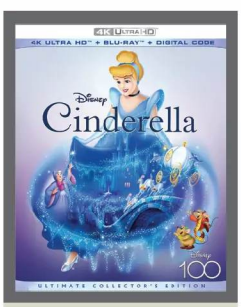
CINDERELLA

DISNEY'S BELOVED *Cinderella* proffers a more traditional telling than I've been exposed to in recent years, distinct from the versions by Charles Perrault, the Brothers Grimm or even Rodgers & Hammerstein's subsequent musical take on the same source material. Although it devotes excessive screen time to her rodent allies, it remains an emotionally satisfying and all-too-human tale of an oppressed young woman forced to work as a servant in her own family home. On the night she reaches her lowest emotional ebb, she's rewarded for her inherent kindness with a magical gift—conditions attached—that might just be enough to deliver her from her current predicament.

This 4K restoration had previously been a Disney Movie Club exclusive but is now available to all. Having worked as a projectionist during a theatrical reissue of *Cinderella*, I have some familiarity with how it should look when properly exhibited, and the hand-drawn/-painted artwork is utterly pristine, with an almost incredible purity to the colors. The characters stand out from the exquisite backgrounds, and the unique design and scale are well-served by this true 2160p remaster. HDR brings welcome life to the many shadows of the chateau and the cat's dark grey fur, while Fairy Godmother's mystical twinkles have a newfound sparkle. Owing to the 73-year-old movie's 1.37:1 aspect ratio, the image is pillarboxed, with black bars left and right to fill the 16:9 screen. The included HD Blu-ray looks terrific too, but naturally the 4K has that much more panache.

The aforementioned four-legged varmints are showcased in largely wordless interactions with one another and so these scenes tend to be driven by Paul J. Smith and Oliver Wallace's musical score, which has a strong presence in the 5.1-channel mix, although to my ear it does seem to suffer from some unfortunate distortion. Singing voices are sufficiently pleasant, and occasional moments like the cat's roar wake up the speakers and sub. Previous editions have included both lossless 7.1 and mono options, the latter in deference to the original release mix, but neither is provided here.

No extras on the 4K disc, whereas on HD Blu-ray we are given three ways to watch: the theatrical *Cinderella* plus "DisneyView," which fills the empty space on the sides with themed artwork, in addition to an elaborate picture-in-picture mode with gobs of behind-the-scenes morsels. There's also kid-friendly trivia hosted by a couple of Disney Channel stars alongside a "Classic Bonus" section which contains many revealing throwbacks, some goofy and some definitely worth our time. ● CHRIS CHIARELLA



ULTRA HD 4K BLU-RAY
STUDIO: Walt Disney, 1950
ASPECT RATIO: 1.37:1
HDR FORMAT: HDR10
AUDIO FORMAT: DTS-HD Master Audio 5.1
LENGTH: 74 mins., G
DIRECTOR: Clyde Geronimi, Wilfred Jackson, Hamilton Luske
STARRING: Ilene Woods, James Macdonald, Eleanor Audley, Verna Felton, Claire Du Brey, Rhoda Williams

PICTURE	★★★★★
SOUND	★★★
EXTRAS	★★★½

Walt Disney

ENTER THE DRAGON

UNDER THE guise of an invitation-only tournament for the world's most elite fighters, the notorious crimelord Han is in fact planning something far more sinister. After some convincing from British intelligence, martial arts master Lee (Bruce Lee) agrees to participate, with the dual agenda of gathering the evidence needed for a government takedown plus revenge upon the man responsible for the death of his sister. A couple of newfound friends share Lee's opposition to Han, but it will take more than these three to win this fight.

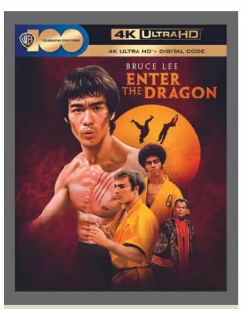
This was the final film that Bruce Lee completed, not the first action opus of its kind rather a new benchmark in its day which would elevate and legitimize the martial arts genre, introducing it to a global audience. Two versions are accessible on a single platter via seamless branching: the 1973 theatrical and 1998's 25th anniversary "special edition," the latter incorporating more philosophy and additional motivation for our hero.

In lavish Technicolor, *Enter the Dragon* boasts some lovely on-location scenery, often with a sharp focus yet the Panavision lenses are known to introduce a weird blurring at times. Warner's magnificent 4K restoration thankfully keeps a fine layer of film grain. Owing to the high dynamic range (HDR10 on disc, Dolby Vision on streaming), dark costumes reveal quite a lot of detail and texture, while the bold colors of the production design, in particular at Han's fortress, make for a visually exciting adventure.

The Dolby Atmos remix is a far cry from the movie's original mono, bringing a refreshed spirit to Lee's mission and the journey of his colleagues through Hong Kong and beyond. An incidental shot of a jumbo jet coming in for a landing offers little hints of overhead audio, crowds are big and busy, and echoes move naturally through the soundstage. The rear channels teem with activity although there are many character-driven scenes so much of the mix remains up front. Dialogue clarity is limited only by the actors' performances but lip synch can be spotty. Lalo Schifrin's musical score is given a generous spread and a substantial bass presence.

But for the brief introduction from Lee's widow, the extensive video-based legacy extras have been dropped for this disc. Much (not all) of this content is preserved however with the provided Movies Anywhere digital copy of the special edition. The disc does carry over the special edition-specific producer/screenwriter commentary.

A pity that Bruce Lee was taken so soon and couldn't witness the ongoing evolution of the genre he so boldly pioneered. ● CHRIS CHIARELLA



ULTRA HD 4K BLU-RAY
STUDIO: Warner, 1973
ASPECT RATIO: 2.39:1
HDR FORMAT: HDR10
AUDIO FORMAT: Dolby Atmos with TrueHD 7.1 core
LENGTH: 99/103 mins., R
DIRECTOR: Robert Clouse
STARRING: Bruce Lee, John Saxon, Jim Kelly, Shih Kien, Ahna Capri, Bob Wall

PICTURE	★★★★½
SOUND	★★★★½
EXTRAS	★★★

Warner

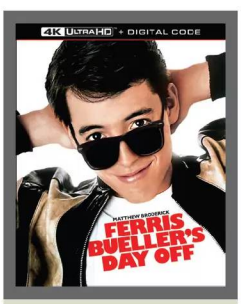
FERRIS BUELLER'S DAY OFF

PRIVATELY, MANY of us have surely dreamed of *being* Ferris Bueller, although I'd wager that even more of us would simply love to have him for a best friend. In a career-defining performance from Matthew Broderick, no doubt aided by his stage background and with charisma to spare, the good-spirited Mr. Bueller plans one perfect day for himself, his girlfriend Sloane and his BFF Cameron before their next chapter begins. It's a joyful few hours at that, albeit one that involves some fast talking, arm twisting, computer hacking and the occasional outright lie. The us-versus-our-parents vitriol of John Hughes' previous effort, *The Breakfast Club*, is tempered here by Ferris' loving relationship with his gullible mom and dad, and his inspired use of fourth wall-breaking pushes the movie into fresh comedic territory, one with an extraordinary amount of visual and musical style as well.

The 2.39:1 image as captured through the lens of director of photography Tak Fujimoto is rife with little background details that come alive now in 4K as never before, bringing an inviting realism to Ferris' perfect world. During the striking Art Institute of Chicago sequence, the exaggerated grain on the extreme close-up of "Sunday Afternoon on the Island of La Grande Jatte," as Cameron loses himself in the painting, is organically preserved. Later, the fun colors of the iconic "Twist & Shout" parade scene add to the feeling of celebration, as directed and choreographed by Kenny Ortega.

The many pop tunes that fill out the soundtrack display excellent fidelity and separation across the speakers throughout this Dolby Atmos remix, which also wonderfully serves Mr. Hughes' musical gags. Off-camera cues appear in the surrounds from time to time, and while overhead usage is restrained, it's there when we would hope for it, as when the Ferrari pays homage to the opening shot of *Star Wars*. The channels work together effectively too when Cameron unleashes his cry of ultimate suffering.

Ferris Bueller's Day Off represents John Hughes' one and only director's audio commentary, created for DVD and long-unavailable otherwise but happily restored for the movie's Ultra HD debut. Additional legacy extras include a surprising amount of vintage on-set footage, one batch containing a deleted/alternate scene. A slew of featurettes from 2005 ably dissects the movie from various points-of-view, and the focus on actor Ben Stein is particularly intriguing. In these retrospective interviews, there's much talk about this being a timeless comedy, and Paramount's new disc is a great modern way for us to enjoy it forever. ● **CHRIS CHIARELLA**



ULTRA HD 4K BLU-RAY
STUDIO: Paramount, 1986
ASPECT RATIO: 2.39:1
HDR FORMAT: Dolby Vision, HDR10
AUDIO FORMAT: Dolby Atmos with TrueHD 7.1 core
LENGTH: 103 mins., PG-13
DIRECTOR: John Hughes
STARRING: Matthew Broderick, Alan Ruck, Mia Sara, Jeffrey Jones, Jennifer Grey, Cindy Pickett

PICTURE	★★★★½
SOUND	★★★★
EXTRAS	★★★

Paramount

GUARDIANS OF THE GALAXY VOLUME 3

GUARDIANS OF THE GALAXY VOLUME 3 finds our beloved band of misfits set on repairing the extreme damage done by Thanos during his run-in with The Avengers. It isn't long before the Guardians' attempt to return to normal is upended by a brutal attack from a new enemy who has a direct connection to Rocket's turbulent past and will use any means to fulfill his quest.

Set to the backdrop of Awesome Mixtape #3, this volume is the final installment in the trilogy. Written and directed by James Gunn, this film like its predecessors is a perfect blend of tongue-in-cheek humor, action, well-shaped characters and inventive energy. This one adds a palpable level of emotion which underscores the narrative, while staying true to the arc across all three movies.

The video was rendered from 8K/6K sources, finished on a 4K digital intermediate, and marks the first Ultra HD Blu-ray release from Marvel that incorporates shifting aspect ratios to accommodate the IMAX scenes. This film is in-your-face colorful, relying on stylized visuals that employ stark contrast, varying chromatic elements and lots of CGI. The increase in detail and chromatic highlights are noteworthy, featuring rich primaries and gradational whites and gray tones. There is some innate softening due to the extensive CGI, but it's rarely depreciating.

High dynamic range plays a central role, as specular highlights appear vibrant, while mixed light/dark elements reveal appreciable dimension in blacks and shadows, giving the image lots of depth. Across the board, I found that it benefitted from the increase in resolution, emboldened color and high dynamic range treatment, for a visually compelling result.

The Dolby Atmos mix makes effective use of the platform, offering rich sonic clarity and precise dialogue reproduction. The representation of subtle background sounds, off-camera cues and spatial dimension within the acoustic environment is excellent. The low frequency effects channel is active as the subwoofer works in tandem with the rest of the system to convey the bass and impact associated with the action sequences. I enjoyed the track's balance of atmosphere/discrete object placement. I think that each complemented the source material and made for an entertaining listening experience.

Bonus content includes two production featurettes with insights from the cast/crew, deleted scenes, a gag reel and another terrific audio commentary from Mr. Gunn, a tradition for his films on disc. An HD feature film Blu-ray and a Movies Anywhere digital code complete the set.

Guardians of the Galaxy Vol. 3 is a befitting albeit bittersweet sendoff. ● **RALPH POTTS**

ULTRA HD 4K BLU-RAY
STUDIO: Walt Disney, 2023
ASPECT RATIO: 1.90:1/2.39:1
HDR FORMAT: HDR10
AUDIO FORMAT: Dolby Atmos with TrueHD 7.1 core
LENGTH: 149 mins., PG-13
DIRECTOR: James Gunn
STARRING: Chris Pratt, Zoe Saldana, Dave Bautista, Karen Gillian, Pom Klementieff, Vin Diesel, Bradley Cooper, Will Poulter

PICTURE	★★★★★
SOUND	★★★★★
EXTRAS	★★★

Walt Disney

RIO BRAVO

DIRECTOR HOWARD HAWK'S *Rio Bravo* is based on the short story of the same name by B.H. McCampbell. It takes place in the American West and tells the story of a small-town sheriff, John T. Chance, who enlists the help of "Dude," a hard drinker with a past, "Stumpy," an ornery codger with a bum leg, and "Colorado," a quick-with-a-gun whippersnapper, to help him prevent the leader of a local band of outlaws from busting his brother—whom Chance arrested for murder—out of jail.

John Wayne was the epitome of the man's man, and this film aptly showcases his charismatic demeanor and faultless delivery. The ensemble cast lends credibility to the proceedings, and Howard Hawks' steady hand keeps things firing on all cylinders. *Rio Bravo* is a true classic that has earned a place among my John Wayne favorites.

Along with *East of Eden*, *Rio Bravo* is one of the catalog greats recently restored and remastered by Warner Bros. This is a period film that relies on visuals to convey its time frame, mood and thematic tone. Looking at the film's opening sequence, the level of depth and definition is immediately obvious. I could detect finer details present during closeups, interior shots and within backgrounds during wide-angle pans.

Some innate softening crops up, but fidelity seems unaffected. The cinematography employs lots of earth tones, and primary colors like red and blue are vividly reproduced. Grain is visible, occasionally with more density, which impacted a handful of backgrounds. I found the presentation to be very tame in terms of its use of dynamic highlights, both bright and dark, however much of that is owed to the nature of the photography. In general, the 1.37:1 image looked fine, making for a noteworthy rendering of the film's elements.

The 2.0 mono audio offers excellent clarity and detail, which pays dividends during both the film's more active and quieter moments. Dialogue is reproduced without harshness and sounds surprisingly full-bodied. Bass frequencies are held to the upper registers which doesn't leave much work for the subwoofer, but I never missed them and the track sounded great.

Bonus features are noticeably scant with only a legacy audio commentary by superfans John Carpenter and Richard Schickel, which is quite good. A printed code for a Movies Anywhere digital copy rounds out the package. *Rio Bravo* is a terrific western fable that successfully blends action with dramatic themes that give it a timeless appeal. This outstanding Ultra HD Blu-ray edition is essential for enthusiasts. ● **RALPH POTTS**

ULTRA HD 4K BLU-RAY
STUDIO: Warner, 1959
ASPECT RATIO: 1.37:1
HDR FORMAT: HDR10
AUDIO FORMAT: DTS-HD Master Audio 2.0 Mono
LENGTH: 141 mins., NR
DIRECTOR: Howard Hawks
STARRING: John Wayne, Dean Martin, Angie Dickinson, Walter Brennan, Ward Bond, John Russell, Ricky Nelson

PICTURE	★★★★½
SOUND	★★★★
EXTRAS	★½

Warner

ROMAN HOLIDAY

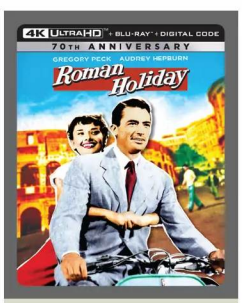
RANKED AS the #4 greatest love story of all time by the American Film Institute, *Roman Holiday*—director William Wyler's 1953 fairy tale—memorably captures the bustling streets and iconic sites of Rome. The story is set against the backdrop of post-war Europe, expressing the exhilaration of not only embracing long-awaited peace but joyously breaking free as young Princess Ann retreats from her royal obligations and finds adventure. This movie put Audrey Hepburn on the map, and I thoroughly enjoy the story's unapologetically schmaltzy romance blended with light humor. There are lots of wonderful little moments in this film which is a testament to the inspired writing and direction. It's difficult to not be enamored by Ms. Hepburn and we can see why she is revered as a true screen legend, and her chemistry with co-star Gregory Peck adds to the film's allure. *Roman Holiday* earned ten Academy Award nominations including Best Picture, and won Best Actress, Best Costume Design and Best Writing, Motion Picture Story for Dalton Trumbo, who famously submitted his screenplay via a "front" due to the Hollywood Blacklist of the era.

The film was digitally restored using the dupe negative and a fine grain element to capture the best possible image. The results deliver marvelous video quality with revealing imagery that preserves the finest details seen in the various locations, dwellings and sets featured in the story. Contrast is stable and blacks are fairly deep and delineated. High dynamic range doesn't play an integral role in the presentation but that isn't deleterious given the film's innate appearance. Grain is presented in even layers that provide a satisfyingly filmic texture. This cinematic gem looks terrific thanks to a well-executed restoration.

The restored monaural soundtrack renders the components of the recording beautifully. Dialogue intelligibility is excellent as it is never lost amidst the other sounds coming through the central channel. Dynamic range is limited, however overall fidelity is excellent and the track sounds airy and detailed. I suspect that purists will appreciate the time and effort that went into maintaining the integrity of the original elements while updating it.

Bonus features include a Filmmaker Focus segment with Leonard Maltin, four photo galleries, two production featurettes, another on screenwriter Trumbo, two retrospectives on Hepburn and several trailers for the film. I found them all to be time well-spent. An HD Blu-ray and digital code complete the set.

Roman Holiday is a fondly influential and purely delightful film. This excellent Ultra HD Blu-ray release is a must-have for fans. ● **RALPH POTTS**



ULTRA HD 4K BLU-RAY
STUDIO: Paramount, 1953
ASPECT RATIO: 1.37:1
HDR FORMAT: Dolby Vision, HDR10
AUDIO FORMAT: Dolby TrueHD Mono
LENGTH: 118 mins., NR
DIRECTOR: William Wyler
STARRING: Audrey Hepburn, Gregory Peck, Eddie Albert, Hartley Power, Harcourt Williams, Margaret Rawlings

PICTURE	★★★★½
SOUND	★★★★
EXTRAS	★★★★

Paramount

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SISU

COMBINING TWO bits of Finnish history—their gold rush plus the Germans' retreat across the country in 1944—into something uniquely original, writer/director Jalmari Helander's *Sisu* spins a thrilling, uber-violent work of fiction. A particularly nasty squad of Nazis crosses paths with lone miner Aatami (Jorma Tommila) who is more than what he seems, and when their arrogance and greed incur his wrath, the bodies begin to pile up. The title is a Finnish word that loosely translates to a sort of superhuman courage, and we soon see that our hero has that to spare. He doesn't talk much, rather the lines etched in his deadly serious face say it all. There's an undeniable purity to the storytelling here, nothing is wasted, and at only about an hour and a half, it's quite tight, undeniably drawing inspiration from *John Wick*, *Jaws* and more.

The movie was shot digitally, yielding a 2160p master that's been graded for Dolby Vision HDR. The highlights bring an enticing glow to Aatami's gold, and the entire production looks to have taken advantage of the ample natural sunlight at various times of day, to lovely effect. Patches of color bring life to the bleak landscape, and there's deep red blood... well, pretty much everywhere before the end credits roll. Shadows are wonderfully nuanced, and image detail is excellent, as on the filth clinging to the soldiers' faces. Slow motion shots seem to reveal a slight telltale video harshness.

The 5.1-channel audio is thoughtfully designed, beginning with the impressive phasing of German planes overhead during a camera move, efficiently and realistically incorporating the surrounds. We can only imagine what the mixer could have done with a full Atmos canvas to explore.

There's plenty of action here, alive with shouts and wails and gunshots and explosions, powerfully underscored by Juri Seppä and Tuomas Wäinölä's musical score. Atmospherics are generously dispersed across the rears, although low end could have been exploited with greater gusto.

The "making of" segment is comprised of an engaging array of filmmaker interviews, while the visual effects featurette is a testament to the seamless work performed by these artisans. The movie and its extras are spread across a triple-layer BD-100 platter. An HD Blu-ray and a printed code for a single-vendor 4K digital copy are supplied.

Initially released last year and finding its way to our shores this past spring, *Sisu* could have easily slipped through the cracks but is definitely worth seeking out, especially in Lionsgate's fine Ultra HD edition. ● **CHRIS CHIARELLA**

ULTRA HD 4K BLU-RAY
STUDIO: Lionsgate, 2022
ASPECT RATIO: 2.39:1
HDR FORMAT: Dolby Vision, HDR10
AUDIO FORMAT: Dolby TrueHD 5.1
LENGTH: 91 mins., R
DIRECTOR: Jalmari Helander
STARRING: Jorma Tommila, Aksel Hennie, Jack Doolan, Mimosa Willamo, Onni Tommila, Tatu Sinisalo

PICTURE	★★★★½
SOUND	★★★★
EXTRAS	★★½

Lionsgate

TO LIVE AND DIE IN L.A.

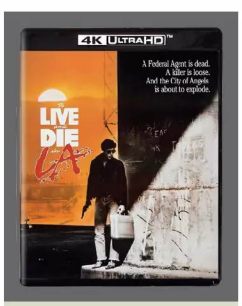
COULD THE acclaimed director of *The French Connection* still be relevant in the MTV era? That's a big 10-4, with William Friedkin delivering another edgy tale of cops and robbers, this time set on the left coast, and even helming the Wang Chung music video for the title tune (unfortunately absent from this disc: lawyers!) Adapted from former Secret Service agent Gerald Petievich's novel of the same name, the story sets hot-tempered man-with-a-badge Chance (William Petersen) on a vengeful path after a ruthless counterfeiter (Willem Dafoe) kills his mentor and best friend. Chance is supposed to be the good guy, but he never met a rule he wouldn't break, much to the chagrin of his by-the-book new partner (John Pankow) who didn't sign up for a case this out of control. Fists and bullets fly, and we're witness to one of the wildest car chases in movie history, against traffic on an L.A. freeway.

To Live and Die in L.A. was not without its controversy, as the government was unamused by the filmmakers' highly accurate and specific depiction of the process of printing bogus twenties, reportedly guided by a convicted felon. The dialogue occasionally veers into clunky territory and some of the dramatic choices can feel forced, but this is surely another worthy entry in the pantheon of great '80s crime thrillers.

Newly remastered in Dolby Vision from a 4K scan of the original camera negative, the 1.85:1 image retains a healthy film grain, touched by only very mild video noise or ringing in fades or other process shots. Director of photography Robby Muller has a knack for crafting scenes that can be both gritty and beautiful at the same time, with refreshed colors that really pop. As happens with certain movies of this era shot on 35mm film, shadows are often somewhat flat.

The rechanneled DTS-HD Master Audio 5.1 offers a generous spread of the action into the rears, with exceptional clarity and fidelity as well. Wang Chung's interwoven musical score drives the proceedings forward, and every once in a while there's a standout moment such as the buzzing of flies over a dead body. No modern Atmos remix is provided, rather the vintage stereo is available via the menus.

The only extra on the 4K disc is an archival Friedkin audio commentary. On Disc Two, the HD Blu-ray of the film (also with commentary), are several talent interviews and featurettes, some quite substantial, ported from as far back as 2003 and therefore in a mix of standard and high definition. ● **CHRIS CHIARELLA**



ULTRA HD 4K BLU-RAY
STUDIO: Kino Lorber Studio Classics, 1985
ASPECT RATIO: 1.85:1
HDR FORMAT: Dolby Vision, HDR10
AUDIO FORMAT: DTS-HD Master Audio 5.1
LENGTH: 116 mins., R
DIRECTOR: William Friedkin
STARRING: William L. Petersen, Willem Dafoe, John Pankow, Darlanne Fleugel, Debra Feuer, John Turturro

PICTURE	★★★★½
SOUND	★★★★
EXTRAS	★★★

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JETHRO TULL

THE BROADSWORD AND THE BEAST

40TH ANNIVERSARY MONSTER EDITION & VINYL EDITION BOX SETS

Like many rock bands that initially emerged from the free-flowing nether-reaches of the 1960s, Jethro Tull had a decision to make upon entering the 1980s—namely, stick with their signature sound, or embrace the emerging technology of the new decade? Tull mastermind Ian Anderson chose the latter, initially going all-in on the electronic-tinged aural front with August 1980's *A*. While *A* was certainly an eclectic and challenging jumping-off point, its follow-up, April 1982's *The Broadsword and the Beast*, was a much better marriage of classic neo-Tull with the more modernized electro-Tull. Two new 40th anniversary box set offerings for *Broadsword*—a 5CD/3DVD smorgasbord subtitled

the *Monster Edition*, and a relatively extensive companion 4LP collection—tell the album's expanded sonic-swashbuckling tale quite well in their respective ways.

The *Broadsword* CD/DVD box measures $5^{1}/_{2}$ x $1^{2}/_{8}$ x $7^{5}/_{8}$ inches (w/h/d), and it fits perfectly alongside the other (count 'em) *13* entries in the master Tull box set reissue series. Interestingly, the afore-noted *Broadsword* 4LP box set is the most wide-ranging offering for this series' vinyl companions to date—usually, they tend to replicate the core album with limited additional material. Since I never owned an original *Broadsword* LP—having been quite content with the 1990 Chrysalis Redbook CD and then the 2005 remastered Chrysalis CD with eight bonus tracks—the 42-track LP box was a welcome addition to my analog-listening queue, and it also gave me a chance to marvel at the original full-size lavish LP cover art by Iain McCaig, as found within. (The outer box only sports a centralized silhouette of McCaig's iconic "beastie" image on a black background.)

Inside the *Monster Edition* CD/DVD box set is a bound-in 164-page book containing truly detailed liner notes by Martin Webb and various recollections from Anderson and other Tull-member participants plus many of-era photos, and much more. Truth be told, I wish more box set liners were this in-depth. (The loose, saddle-stitched booklet in the LP box runs just 28 pages, but it is still quite informative.) Besides all that, there is *Broadsword* music galore, with a cavalcade of bonus tracks—many of them hitherto unreleased—including associated recordings and demos, early 1981 sessions, original 1981 master mixes, 1982 rough mixes, and two-dozen 1982 live recordings from Germany, all strewn across 5CDs and 3DVDs. Longtime handpicked Tull remix-master Steven Wilson has once again been deployed to update the stereo mix—which can be found on all three formats (CD, DVD, and LP)—in addition to providing new 5.1 (and even 4.1!) options on DVD. (Alas, there is no Atmos.)

CD1 commences with Wilson's new stereo mix of the core album—and you'll likely notice some, shall we say, "keyboard level adjustments" all throughout that may in fact be preferable to certain Tull fans' ears. (That said, a flat transfer of the original stereo mix can be found on DVD1.) Of the surround offerings on DVD1, I prefer the Dolby ACS 5.1. Wilson gets the instrumental balances just right, commencing with the opening track "Beastie" by having Peter-John Vattese's initial ominous keyboard stab-growls swirl all around the soundfield before nestling somewhat back in the overall mix, rather than dominating it. Martin Barre's brief guitar solo comes at you front and center—and be sure to listen for Anderson's final vocal exclamation in the rear-left channel before "Beastie" ends. Wilson also nails the all-channel melodic blend of acoustic guitar and flute lines in "Fallen on Hard Times"—not to mention where he has the supportive slide riffs appear in the song's back half. Meanwhile, the partially titular "Broadsword" offers a nice pair of slow-burn buildups to both of Barre's guitar-solo sections, each of which take advantage of the breadth of the full-channel field in different-quadrant call-and-response ways. DVD2 carries forth with the balance of the studio bonus material, while DVD3 contains all *Live in Germany 1982* tracks in both LPCM stereo and 4.1 DTS and Dolby ACS options. The vocal harmonies on "Songs From the Wood" are amongst my favorite 4.1 moments on DVD3.

Without question, *The Broadsword and the Beast 40th Anniversary Monster Edition* towers over its CD (and LP) predecessors. Fact is, hardly any of Jethro Tull's chief contemporaries have been so archivally invested as this band continues to be in mining and refining their entire catalog and vault content quite so thoroughly and rigorously—and, I suspect, this M.O. will continue as Anderson and the Tull team wind through the remainder of the band's recorded C.V. Me, I can't wait to hear what Anderson & Co. have in store for September 1987's *Crest of a Knave*—likely to follow whatever's done with September 1984's *Under Wraps*, that is. And, *please*, can we get Atmos mixes for those two albums while we're at it? (Asking for a friend.) In the meantime, the bulk of the *Broadsword* box set—whether you choose to go digital or analog (or both!)—is a *beast* of a rewarding listening endeavor in every best sense of the word. ● **MIKE METTLER**

PHOTO BY MARTYN GODDARD

5CD/3DVD & 4LP

Label: Chrysalis/Parlophone

Audio Format: 24-bit/96kHz DTS 5.1 and Dolby ACS 5.1, 24-bit/96kHz DTS 4.1 and Dolby ACS 4.1; 24-bit/96kHz LPCM stereo (DVD); 16-bit/44.1kHz LPCM stereo (CD)

Number of Tracks: 81 on 5CDs; 92 on 3DVDs; 42 on 4LPs

Length: 5:22:29 on 5CDs; 6:48:19 on 3DVDs; 2:38:47 on 4 LPs

Producer: Paul Samwell-Smith (original album and box sets)

Engineers: Robin Black (original album and box sets); Leigh Mantle (assistant engineer, original album); Steven Wilson (stereo remix for CD/DVD and LP box sets; 5.1 and 4.1 surround mixes for box set DVDs); Don Needham (audio research, box set)

Performances ★★★★½
Sound ★★★★½

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NINE INCH NAILS: *THE DOWNWARD SPIRAL*

The Only Thing That's Real

NO ONE does self-loathing, despair, and existential angst quite like Trent Reznor. Right from the outset of his then one-man band Nine Inch Nails' October 1989 TVT debut album *Pretty Hate Machine* and the unforgiving, snarling manifesto of its opening track "Head Like a Hole," Reznor threw down the gauntlet of NIN's take-no-prisoners aural template. Within NIN, he enmeshed industrial synthesizer clank, metal-riff drang, searing layered instrumentation, and sneering vocals all into an unapologetically abrasive style that came to define one particular slice of 1990s alt-rock culture.

With NIN's sophomore album, March 1994's 14-song, 65-minute darkwave magnum opus *The Downward Spiral*, Reznor left most of his contemporaries behind. Since *Spiral* was made during the height of the digital age, most of us initially experienced its punishing music via the 1994 Nothing/Interscope CD before re-absorbing it in other formats. It's also worth noting that Reznor has always been quite meticulous with the way he chronicles the hand-picked catalog numbers for all his releases so that each iteration gets its own spelled-out, all-lowercase nomenclature. Hence, *The Downward Spiral* is cataloged as *halo eight*, since it followed seven other prior NIN releases like *Pretty Hate Machine* and various singles and EPs. If you're a hardcore NIN collector, you want *every halo* permutation you can find.

Reznor didn't skimp on ensuring the 1994 Nothing/Interscope 2LP vinyl edition of *Spiral* did its expected analog job—especially when it came to its insanely *slamming* bass content—not to mention how the relentlessly grating objective of the overall sound design remained intact, just as it should. Considering how pricey the original 2LP set is, it's been refreshing to see an affordable, 2023-pressed 180-gram 2LP version from Nothing/Interscope. Though *Spiral* was remastered back in 2017 by Reznor for its initial 180g vinyl re-release on the same label, the new 2LP set is still rightfully dubbed as being the Definitive Edition.

That said, once Reznor began experimenting with surround sound, it was only a matter of time before *Spiral* got its own multichannel due in 2004 by way of a two-disc 10th anniversary edition on Nothing/Interscope that features a *killer* 5.1 mix on SACD. Incidentally, that 5.1 mix is also available on the concurrently released 2004 CD/DVD DualDisc—but that one's for completists only.

When Reznor and I spoke about his surround sound M.O. back in 2002, he was adamant about the role of vocal placement. "The main problem I ran into was, what the hell do I do with the center channel?" Reznor told me. "While it can bring things out in a mix, it can also *destroy* a mix. One giant mistake is that some people put the lead vocal dry in the center channel. As a singer, I can assure you, I *never* want anyone to hear my lead vocal dry." Whether working with live or studio material, Reznor made sure to keep his eyes, and ears, on the all-channel prize. "I wanted the band to be playing in front of you and not lose any of the impact it would have if it was in stereo—but at the same time, I wanted to *immerse* you," he explained. "When you listen to a powerful stereo mix, you're not missing those 'extra' speakers, so I didn't want to get too distracting with the surround-channel speakers or rely on reverb to 'set' the space."

As much as I enjoy spinning *Spiral* on vinyl, Reznor's artistic intent is better realized in its multichannel incarnation. Dig a) how the manic "Lust for Life"-like drumming intro to "March of the Pigs" ultimately gives way to repeated headbanging volume swells and outright all-corners cacophony, and b) the way Reznor follows his aforementioned vocal goals on the choruses of "Closer" by having his voice directly compete with the levels of the bass, percussion, and synth lines that surround him. The lynchpin track, the epic ballad "Hurt," veers from wounded whisper to controlled seething, with Reznor's center-left vocal clearly enunciated but never shrill, even as crystalline piano plinks push through the sub-channel din. The extended encircling, warbling *whoosh* denouement feels nothing short of a cloying wind billowing through your skull.

Naturally, while the 5.1 *Spiral* is definitive NIN, I still wouldn't mind hearing Reznor lift it into the Atmos stratosphere—perhaps as part of an all-out, full-bore 30th anniversary collection to come in 2024. Until then, hearing *The Downward Spiral* in its surround sound mix on SACD will, without a secular doubt, bring you closer to God. ● MIKE METTLER

1994 Nothing/Interscope 2LP

2004 Nothing/Interscope Deluxe Edition SACD+CD

2004 Nothing/Interscope DualDisc

2023 Nothing/Interscope 2LP

2004 Nothing/Interscope SACD+CD booklet

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